VOLUME 7, NUMBER 3 $4.00 NOVEMBER/DECEMBER 1989
THE MAGAZINE FOR TEACHERS OF THE 1990s

TEACHING and computers

p8- video computing

Computer coordinator Linda Davis and students from the Missouri School for the Deaf.

YES WE CAN!

TECHNOLOGY AND SPECIAL NEEDS STUDENTS

JOURNEY TO THE THIRD WORLD

COMPUTER CRUSADERS: DATA BASES!

SCHOLASTIC

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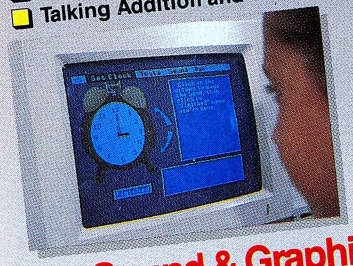
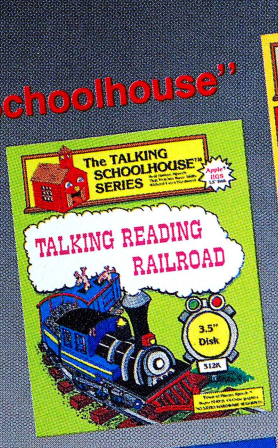
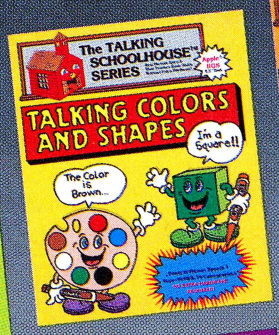
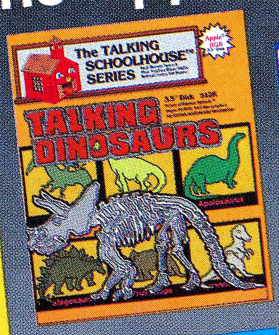
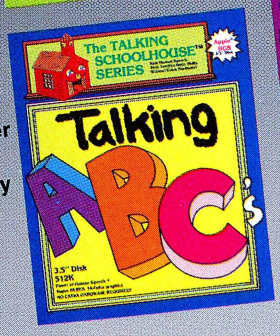
- Talking Addition and Subtraction
- Talking ABC's
- Talking Speller
- Talking Clock
- Talking Money

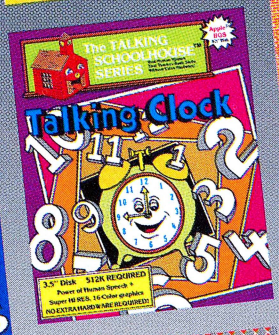


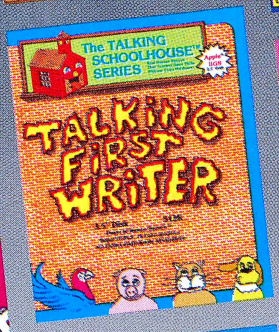


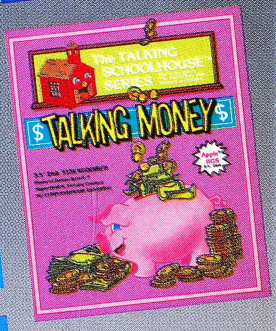


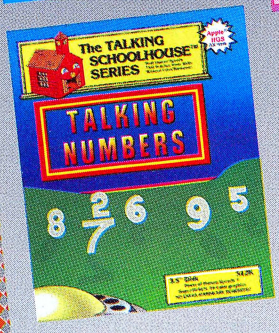












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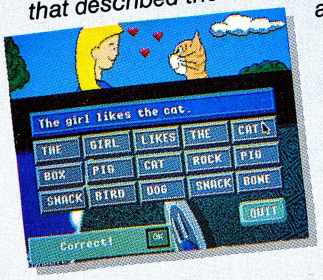

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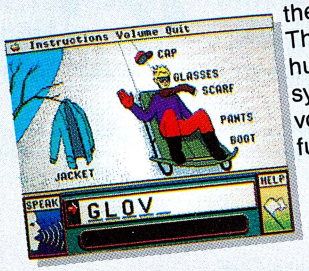
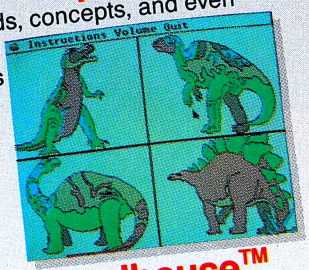


Super Hi-Res Graphics

Letters, numbers, words, concepts, and even dinosaurs come alive in thousands of colors with our super high resolution graphics. These programs let the GS computer perform at its maximum level.



The Talking Schoolhouse™ Series

from Orange Cherry Software. All programs are currently available on 3.5" disks for the Apple IIGS. The suggested retail price is $49, $59 for the School Edition. To order, or for more information contact your dealer or call toll-free (800) 672-6002.

Circle 22 on Product Information Card.

TEACHING and computers

VOLUME 7, NUMBER 3 NOVEMBER/DECEMBER 1989

CONTENTS

Teacher Features

Cover and photo by Julie Robertson

YES, WE CAN!

From deaf students in Missouri to emotionally disturbed kids in Los Angeles to learning disabled middle schoolers nationwide, special needs technology success stories abound!..... **18**

JOURNEY TO THE THIRD WORLD

Students use integrated tool software, research, and creative writing to develop a more personal understanding of life in developing countries..... **26**

ELECTRONIC LESSON PLANS

SCIENCE: "T" is for Tooth
MATH: Feast Day Word Problems
SOCIAL STUDIES: Compute a Career!..... **42**

WALLCHART SPECIALS!

IBM FAMILY SERIES: READING AND WRITING (CENTER)

Classroom Materials

COMPUTER CRUSADERS SUPER PAGE

Adventures in the Realm of Data Bases..... **29**

COMPUTER CRUSADERS TEACHING GUIDE

Management tips and student activity cards..... **33**

THE CREATIVE COMPUTING STUDIO

Creativity task card series. This issue: *Problem Solving*..... **50**

Columns and Departments

UPDATE **6**
News for computer-using teachers.

CLASSROOM HAPPENINGS **8**
What's happening in computer classrooms.

INSERVICE WORKSHOP **10**
A guide for teachers helping teachers.

WELL-MANAGED CLASSROOM **12**
Computer solutions for your administrative tasks.

MICRO IDEAS **16**
Quick computer tips and activities.

FIRST STEPS **54**
Computer activities for the primary grades.

SOFTWARE SHOWCASE **58**
Software recommended for teachers by teachers.
- **Exploring Measurement, Time, and Money**
- **Words and Concepts I**
- **Amiga Logo**
- **Explore-a-Classics Series**

PLUS: Added Attractions

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FROM THE EDITOR

A Look Inside T&C

Extra Special: It's Good News!

Even in the sometimes feverish world of educational computing, few topics generate the kind of excitement that special needs technology does. Special educators are among the most zealous converts to technology, and they come armed with an amazing array of success stories—stories of heretofore "unreachable" children who have been transformed into expressive achievers with the help of computers. Special needs computing advocates form a tight-knit, phenomenally creative human network within the larger educational technology community, and their efforts have had an impact on all of the major players—including *Teaching and Computers.*

From the beginning, *T&C* has worked to integrate sensitivity to special-student needs into every aspect of the magazine. We've sought out "Classroom Happenings" and "Micro Ideas" from special educators, featured adaptive products in the "Update" column, and included special classrooms as locations for our feature story photo shoots. Each issue, we run extensive adaptations to our cross-curriculum class project for learning disabled students. And perhaps most important, we've recruited several particularly enthusiastic special educators for our Teacher Advisory Board and paid close attention to their feedback.

It was to one of those teacher-advisers that we turned when it came time this year to put the good news about special needs technology on our cover. Over the course of her year on our board, Linda Davis had shown that her knowledge of the field extended far beyond even the exciting things happening at Missouri School for the Deaf, where she serves as computer teacher and computer coordinator. In her cover story (which begins on page 18), Linda manages to combine a national perspective on special education issues with fascinating "from the trenches" examples based on her own direct experience. Together with the accompanying pieces on computer use with middle school special needs students and with emotionally disturbed children in residential treatment, Linda's story captures the sense of challenge and achievement that seems to be the hallmark of special educational technology.

Part of what makes special needs computing so exciting is that it offers such a compelling template for mainstream computer use in schools. Special educators have devoted much attention, by necessity, to issues like individualization of instruction, learning styles, motivation, and communication. Their work in these areas, and their recognition of the role that technology can play, is a source of inspiration to all teachers who really believe in child-centered learning. As Dr. William Shennum and Marcella Nino point out in their piece on emotionally disturbed kids, the difference between these students and their "normal" contemporaries is just a matter of degree. All children have strengths and weaknesses, troubles and triumphs, and the computer is but another tool that caring teachers can use to bring out and build upon their students' "best stuff."

Emphasizing the commonality of all children—and beyond that, all people—is the goal of this issue's class project feature (page 26). By incorporating data bases, spreadsheets, online research, and word processing into students' study of the Third World, teacher-author Roxanne Mendrinos hoped to encourage empathy and a sense of shared responsibility for humanity—much-needed qualities in this era of ever-growing global interdependence. If her students' sample essays are any indication, her strategies worked—and they'll work for you too!

This issue also features a report from "the second world" in the form of an article by teacher Becky Fisher (page 8). Along with several other computer-using educators from the U.S., Becky traveled last summer to the U.S.S.R. As she notes in her report, the commonalities shared between Soviet and American teachers and children are many, and their differences really are a matter of degree. With that kind of good news, this holiday season seems a little bit brighter!

M. Revenaugh

TEACHING and computers

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NEW YORK OFFICE 730 BROADWAY, NEW YORK, NY 10003; 212/505-3482
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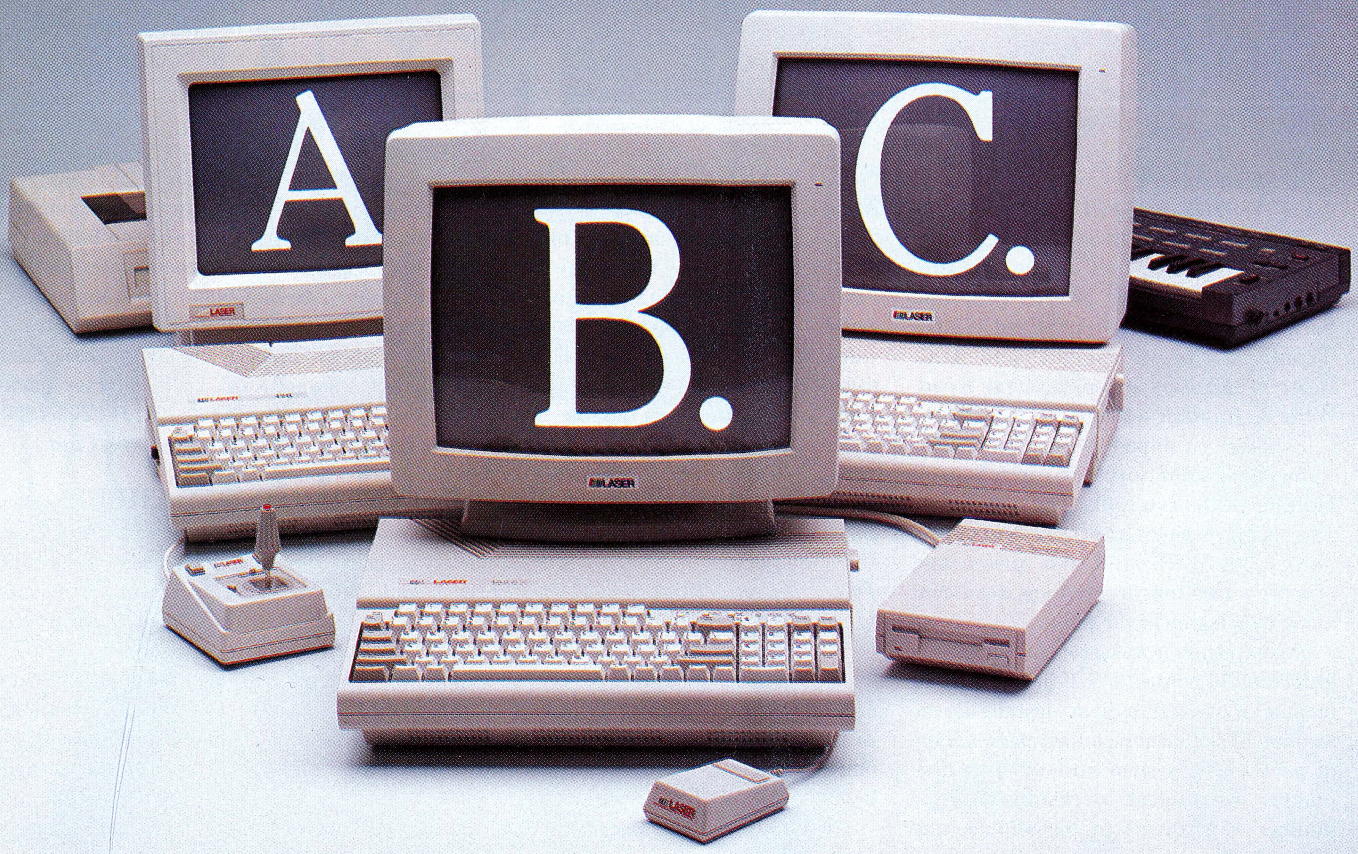

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UPDATE

News for Computer-Using Teachers

BY LOUISE C. ORLANDO AND BILL MORGAN GOSEWISCH

$10,000 GRANTS FOR NETWORK PILOT SITES

The William K. Bradford Publishing Company is seeking networking pilot sites for its software grant awards program. Each site will receive $10,000 and WKB's *Explore-a-Classic Series* and D.C. Heath's *Explore-a-Story* and *Read, Write & Publish* software.

Schools equipped with AppleTalk/AppleShare, IBM Novell, or Tandy School-Mate networks can apply. The school must also designate a contact person, host on-site visits from WKB staff and guests, and prepare a minimal proceedings document at the conclusion of the pilot.

Schools wishing to be considered for the grant should contact WKB in writing and include a brief statement describing the location of school and contact person, type of networking system now in operation, number of student workstations, total number of students to participate, and rationale for selection as a pilot school. Statements should be sent no later then January 31, 1990 to: William K. Bradford Publishing Company, Networking Pilot School Program, P.O. Box 1355, Concord, MA 01742.

SECOND LOGOWRITER STUDENT SWEEPSTAKES

Students between the ages of 5 and 19 in Canada or the U.S. can enter the Logo Computer Systems Inc. (LCSI) *LogoWriter* Student Sweepstakes.

To enter, each student must send in a printout of any project created with *LogoWriter* that includes both text and graphics. Students may enter as many times as they'd like, but each entry must be accompanied by a printout of a different project. Students may work individually or in groups of up to three. All winners (whether individual entries or members of winning groups) will receive a copy of *LogoWriter* Home Edition.

Entries must be postmarked no later than December 31 and received no later than January 19, 1990. A complete list of contest rules and official entry blanks are available by writing to: The *LogoWriter* Student Sweepstakes, LCSI, P.O. Box 162, Highgate Springs, VT 05460.

NYC MARKETS TEACHER-MADE MATERIALS

The Division of Computer Information Services of the New York City Board of Education is producing and selling teacher-generated software, resource manuals, and videotapes. Some of the available software titles are *Earth Science, Map Skills,* and *The Constitution.* Available resource manuals include *Computers in the Earth Science Classroom, Computers in the American History Classroom,* and *Computers in the English Classroom.* Videotapes include *An Introduction to Telecommunications* and *Preventative Maintenance.*

Software is $12, resource manuals range from $7 to $30, and videotapes are $20 and $30. For more information contact: Jeffrey Branzburg, Division of Computer Information Services, 131 Livingston St., Brooklyn, NY 11201.

(Circle 101 on Product Info. Card.)

DATA BASE AIDS MISSING CHILDREN SEARCH

The National Center for Missing and Exploited Children now has access to over 100,000 public, private, and Catholic schools, thanks to the donation by Quality Education Data (QED) of its national data base of American schools.

QED's Academy On-Line, the name of the data base the Center will search, provides instant access to data from any school in the U.S., including phone numbers, names of administrators, and other key facts. The Center will also use Academy On-Line to disseminate information about child safety issues to parents and schools.

Further information on Academy On-Line may be obtained through Mary Ellen Dlouhy, Senior Vice President, QED Inc., 1600 Broadway, Denver, CO 80202-4912; 800/525-5811.

"SCHOOL'S COOL" CAMPAIGN LAUNCHED

"Don't Drop Out" is the slogan for the Society for Visual Education's (SVE) "School's Cool" campaign aimed at keeping kids in school. The campaign was launched in Chicago, where SVE is headquartered.

Headed by President and CEO Suzanne Isaac, the SVE's program stars a penguin named Duke. Duke appears on billboards in Chicago and on classroom materials such as posters, stickers, bookmarks, audio tapes, and teacher's guides. For further information on SVE or the "School's Cool" campaign, contact SVE, 1345 Diversey Parkway, Chicago, IL 60614-1299; 312/525-1500.

(Circle 102 on Product Info. Card.)

INNER-CITY TEACHERS SUMMER AT DARTMOUTH

The Computer Learning Foundation and Information Processing Program (CLIPP), funded by the Sherman Fairchild Foundation, brings 35 teachers from inner-city schools to Dartmouth College each summer to study computing fundamentals, computer-related curriculum planning, and writing. This past summer, teachers from Boston, Atlanta, Chicago, Omaha, Fort Worth, and Cincinnati participated in the program, which is slated to expand to include Cleveland and Detroit for the summer of 1990. The program is funded through the summer of 1992. For more information, contact Nancy Freiberg of the Dartmouth College News Service, 23 South Main St., Hanover, NH 03755; 603/646-3661.

MARTIN LUTHER KING LEGACY ON VIDEODISC

ABC News Interactive and Optical Data Corporation have recently released *Martin Luther King, Jr.,* the first interactive educational videodisc to examine the life of America's foremost civil-rights leader.

Among the highlights of the videodisc is Dr. King's "I Have A Dream" speech complete and unedited, and comments by civil-rights veterans such as Andrew Young and Joseph Lowery. ABC News' *Nightline* anchor Ted Koppel acts as "content guide" for the videodisc.

The videodisc comes with corresponding *HyperCard* stacks, a printed directory of the videodisc's contents, and lesson plans. The total price is $395.

For more information, contact Optical Data Corp. at 30 Technology Dr., Warren, NJ 07060; 201/668-0022, 800/524-2481.

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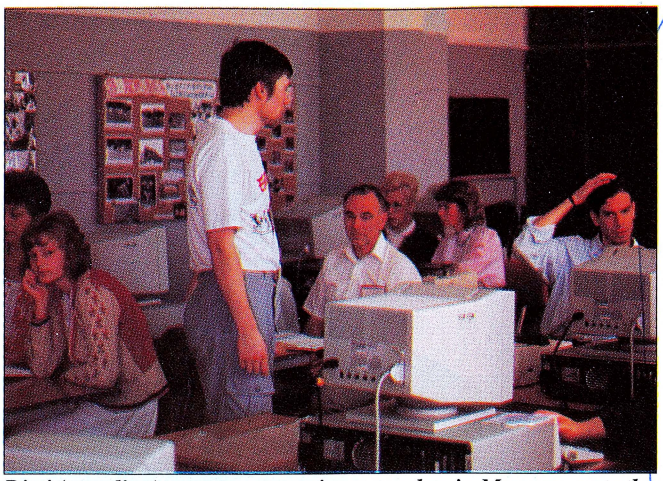
CLASSROOM HAPPENINGS

What's Happening in Computer Classrooms

EDITED BY LOUISE C. ORLANDO



Dimi (standing), a computer-science teacher in Moscow, gets the Soviet and American teachers started on word processors.

I•N•T•E•R•N•A•T•I•O•N•A•L

COMPUTER-USING TEACHER VISITS USSR

Editor's Note: *Through a project coordinated by the Cambridge, Mass.-based Technical Education Research Centers, Becky Fisher's students from Murray High School in Charlottesville, Va., have been telecommunicating with students in the Soviet Union on collaborative* LEGO TC logo *projects. Last summer, Becky had a chance to see the Soviet schools first-hand. Here's her report.*

This past summer I traveled with six others to the Soviet Union. We went to Moscow and Leningrad to conduct and participate in workshops, and also with the hopes of further establishing our ties in the Soviet Union while developing future cooperative projects.

I learned a lot about the Soviet education system. What I learned made me take a closer look at the U.S. system. I discovered that the U.S. and the Soviet Union have adopted some of each others' teaching practices.

For example, the Soviets have a wide variety of special schools or "spec schools." I met teachers from math spec schools, English spec schools, and so on. Students may enroll in these schools after the seventh or eighth grade. This is very similar to our magnet school system and they have been doing it for years!

The Soviet children I met were clever and creative. They've seen a lot of changes in their short lives and they are optimistic the changes will continue to occur. The Soviet students now have limited access to computers. With President Bush's continued support of technology trade, this access will increase and computers will become common tools in Soviet education. The students are excited about this prospect.

The Soviet School 1 Project, an educational offspring of *perestroika*, has allowed some teachers the freedom to develop their own curricula and teaching strategies. For teachers in schools not involved in this three-year project, there is a national curriculum that must be followed. It is the hope of those involved with the School 1 Project that all Soviet teachers will be able to be more creative in their efforts and that better curriculum materials will become available.

FRACTURED FAIRY TALES

By becoming video directors, the sixth-grade art students at Peru Central School in Plattsburgh, New York, are learning that it's not always what you say, but how you present it, that gets your point across. This 1980s version of show and tell helps students improve their preparation and presentation skills while expanding their knowledge of graphic capabilities and creativity.

To begin this project, art teacher Karen Moffa divides the class into groups of four, letting each group pick a fairy tale. They then design graphics for the fable to show to the class.

Using a Koala pad, *Dazzle Draw* (Broderbund), a VCR, blank tape, and TV monitor, the class works in the lab to create a six-panel slide presentation. One slide must contain the title and credits, the remaining slides contain "the tale." Decisions regarding duration of each design on the screen, and the method of fading from slide to slide, are made by group consensus.

After hooking the computer up to the VCR through the video port, the students dub in their own audio narration and music (putting it on a cassette recorder first) and then store it on videotape. When all the projects are finished, Karen and her students sit back and watch their video visions with lots of clamoring and giggles.

WINDOW BANNERS "JUST SAY NO"

Students in Sharon Fraser's computer class at Solano Junior High School in Vallejo, Calif., are used to seeing their artwork on bulletin boards. These days, though, the kids can also see their creations along the main streets of their town.

The children are taking part in "Red Ribbon Week," a yearly campaign to reduce drug use in Vallejo. After listening to Debra Sigler, a police officer in their community, give a talk about drug abuse, the kids got to work using *The Print Shop* and *The Print Shop Companion* (Broderbund) to produce banners with antidrug slogans and graphics. Among the banners' messages: "Don't Get Burned Out on Drugs," "Hugs, Not Drugs," and "Think Before You Start."

After signing the banners, the teens pass them on to the Vallejo Police Department for distribution to local businesses. Several of Sharon's students have even taken turns riding in Officer Sigler's squad car to help spread the antidrug news.

Jackie Glasthal

STUDENTS TEACH TEACHERS

If library users at your school are less than enthusiastic about getting to know a new computerized card catalog system, try having students and teachers swap places.

Fourth graders at Ashby-Lee Elementary School in Mt. Jackson, Va., were the first to learn how to use *Computer Cat* (Winnebago Software) card catalog system in their library media center. Once they mastered the system, they taught the teachers! At the end of a given time period, the classes that had spent the most time on computer received snacks in the teachers' lounge.

HIGH-TECH IN ALASKA

The isolated villages of Akiachak, Akiak, and Tuluksak in the Yupiit School District in Alaska have a combined population of 1,400 people. Most homes have no plumbing, and

the primary mode of transportation is three-wheel all-terrain vehicles. This is a traditional culture, where children learn much from experience and the stories told by their elders

But the way the district's 300 students now learn math, reading, and language arts is ultramodern, thanks to an integrated computer-assisted instruction system from Jostens Learning Corp.

The Tandy computer-based system uses music, eye-catching graphics, and a digitized voice to teach English skills in all subject areas. It also provides teachers with progress reports on each student.

"Before beginning the program, each student takes a computer-adaptive test, which indicates his or her present skill level," says Helen Eckelman, a third-grade teacher. "Students then receive individualized instruction from the computer, which matches their skill level."

Tom Stacey

LEGO-LOGO MANIA STRIKES SALEM

Students and teachers at the Salem Middle School in Salem, Mass., have gone crazy over *LEGO TC logo*. They use the program in all curriculum areas at all levels.

"No matter where it has been used, the result has been the same," says Linda Darisse, computer coordinator. "Students love it!"

There seems to be no end to the different uses the Salemites can find for *LEGO TC logo*. In a sixth-grade science class, it is used to teach simple machines. Seventh graders experiment with gear ratios, and record data in inventors' journals. Eventually, the district will integrate *LEGO TC logo* in all science classrooms.

Salem teachers have also devised a number of non-science uses for *LEGO TC logo*. With one project, students were asked to devise a marketing strategy for their inventions. Another activity required students to put their creations to music.

Salem's creative uses of *LEGO TC logo* were made possible by what Linda calls "creative funding." The district sought aid from local colleges, obtained state and private grants, and sponsored a few garage sales.

Originally, Linda had a tough time getting *LEGO TC logo* into the classroom. "We had to get people to extend their thinking into nontraditional areas of instruction," she recalls. "We also had to dare to have noisy classrooms; dare to have students make 'a mess'; and dare to say, 'I don't know all the answers.'"

Salem students work together to create Lego TC logo *masterpieces.*

BE A REPORTER!

Come on, all you elementary and middle school teachers! We know you're out there! What exciting computer project has your class or school been working on lately? Let us know all about it—we'd love to share it with our readers in a future edition of "Classroom Happenings"!

OFF-LINE: A TEACHER'S NETWORK

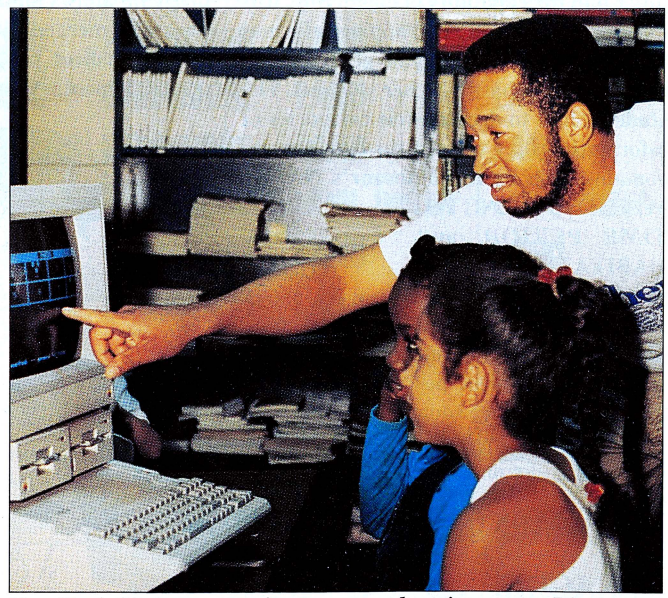
In order to help teachers communicate with one another, Teaching and Computers *created "Off-Line" as a forum for educators. Send your queries and messages—along with an address where others can respond to you —to: "Off-Line,"* Teaching and Computers, *730 Broadway, New York, NY 10003.*

SPECIAL AREA CLASS SCHEDULING

Do you know of any program that will schedule special area classes, such as music and physical education? I need all the basic information about this type of program and, if possible, specific program recommendations. Please write to Linda Wilson, Assistant Principal, Nations Ford Elementary, 8300 Nations Ford Rd., Charlotte, NC 28217.

MOVIE SWAPPERS NEEDED

My gifted K-8 students recently completed a multimedia activity using *Slide Shop*, a camcorder, VCR, and a sound mixer to make a movie. I am interested in exchanging videotapes with teachers who have created computer-video productions with their students. Anyone interested can write to: Marty Schatz, Fellowsville Elementary School, Rt. 1, Box 265. Tunnelton, WV 26444.



New York City's community computer drop-in center, Playing to Win, scores high with learners of all ages.

COMMUNITY CENTER MAKES MUSIC

Kids at the Playing to Win Computer Center in Harlem, New York, have been busy making music. For the second year in a row, the not-for-profit community center held a unique summer computer music program for neighborhood youth.

Local musician Lil' Burn Downing taught several classes in music composition. Students were kept busy learning the elements of music with software like *MusicShapes* (Music Systems for Learning Inc.) for the Apple computer.

Young participants at the center created rap songs, rhythm and blues, and rock and roll. Some of the musical creations from serious students went from the computer center right into Lil' Burn's recording studio!

Photo: Haven Colgate ***Andrew Weber***

INSERVICE WORKSHOP

A Guide for Teachers Helping Teachers

BY CAROLYN FETNER AND KAY JOHNSON

Digging Into Data Bases

If elementary students had their way, dinosaurs would be part of the core curriculum. At So So Elementary School, second graders recently researched reptiles and shared their findings with their classmates in the form of posters, dioramas, mobiles, and the trusty old written report.

Gung Ho Elementary's students just couldn't be satisfied with researching dinosaurs the same old way. They wanted to know more: How many of the dinosaurs ate meat? Which of the dinosaurs could swim? Which dinosaurs lived in the Jurassic Era? And on and on and on.

A Gung Ho teacher knew that the computer had the capability of classifying, listing, organizing, and rearranging information. Therefore, she began generating a computer data base with her students. The students had to decide what categories of information they wanted the data base to contain, such as the dinosaur's NAME, WEIGHT, LENGTH, TIME PERIOD, and HABITAT (see worksheet on page 11). Each student entered data about a dinosaur—and then the excitement began. Students were soon searching, sorting, and comparing like mad!

FOR LEARNING AND MANAGING

As they learned at Gung Ho, generating one's own data base incorporates research skills, critical thinking, and computer literacy . . . a complete educational experience! But even commercially produced data bases, already containing information, can teach research skills along with content.

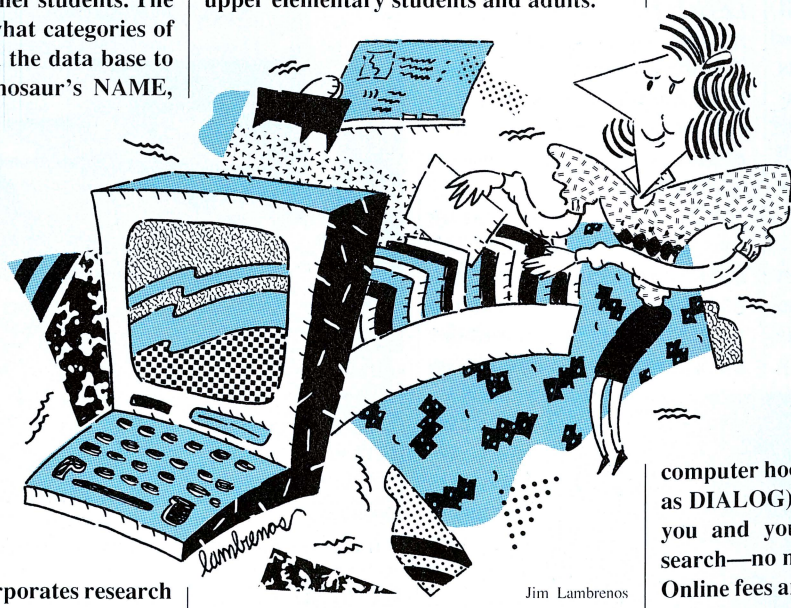
For teachers, data bases can be the timesaver of the decade. Lists of student phone numbers, addresses, parent names and work numbers, birthdays, and so on can be arranged, selected, edited, and printed at the touch of a key. Once teachers have used a data base, they'll never step back into "prehistoric times"!

CHOOSING A DATA BASE

The best data base program for your situation may be determined by availability, capability, and cost. If your school presently has a data base program (perhaps for administrative use?), this would be the most likely place to start. If you're starting from scratch, you should carefully consider what the program can do for you. Some costlier programs are "integrated" with a word processor and spreadsheet in one package. Less expensive programs often "stand alone," containing only a data base.

Packages that have been successfully used in elementary schools include:

AppleWorks (Claris). This integrated program allows information from its data base to be merged with its word processing or spreadsheet programs. Best used by upper elementary students and adults.



Jim Lambrenos

Bank Street Beginner's File (Sunburst). This stand-alone program is easy to use. It also has various prepared data bases available, such as one on "Colonial Times." Students in grades 2 and up can use this program successfully.

MECC Dataquest Composer (MECC). A reasonably priced program, especially for MECC subscribers. MECC also has prepared data bases on such subjects as the Presidents and the 50 states. This friendly program can be used independently by upper-grade students, and by younger students with a little more supervision.

Scholastic PFS:File (Scholastic). User friendly, if somewhat limited; prepared data bases available separately. Can be used by elementary students and adults.

TRAINING TIPS

The ideal data base learning situation should include a demonstration of data base construction followed by ample hands-on learning opportunities. The demonstration must be visible to all learners involved—so consider connecting the computer to either a television monitor or an LCD (liquid crystal display) unit. Follow this with actual on-computer practice that involves naming the file, setting up categories, inputting data, and manipulating data—perhaps using the worksheet data on page 11 for starters! You should also provide practice in formulating "search or sort" questions, which teachers can then model for students.

DATA ONLINE

Does the miracle of the data base end here? No, indeed! The advent of online computer searching has opened doors to a wealth of easily accessible information. A modem (telephone/computer hookup), an online vendor (such as DIALOG), and a little money will have you and your students addicted to research—no matter how obscure the topic! Online fees and training requirements are often seen as stumbling blocks, but that won't stop creative computer-using teachers from making online data base use a part of the elementary-school research and computer education program.

Data bases are a new way of life—a means of organizing, selecting, and manipulating masses of information. With your help, teachers will dig right in!

Carolyn Fetner and **Kay Johnson** are media specialists at Dyer Elementary and Centerville Elementary, respectively, in Gwinnett County, Ga.

DIGGING INTO DINOSAURS

NAME _____

Directions: Using the information in the data base below, answer the questions that follow:

NAME	WEIGHT	LENGTH	TIME PERIOD	FOOD	HABITAT	TRAVEL
BRONTOSAURUS	50 TONS	70 FT.	JURASSIC	HERBIVORE	SWAMPS	LAND, WATER
ALLOSAURUS	3 TONS	30 FT.	JURASSIC	CARNIVORE	LAND	LAND
BRACHIOSAURUS	85 TONS	80 FT.	JURASSIC	HERBIVORE	LAND	LAND, WATER
TYRANNOSAURUS	8 TONS	50 FT.	JURASSIC	CARNIVORE	LAND	LAND
TRICERATOPS	10 TONS	25 FT.	CRETACEOUS	HERBIVORE	LAND	LAND
DIPLODOCUS	60 TONS	86 FT.	JURASSIC	HERBIVORE	LAND, WATER	LAND, WATER
ORNITHOLESTES	15 POUNDS	6 FT.	JURASSIC	CARNIVORE	LAND	LAND
COMPSOGNATHUS	10 POUNDS	25 FT.	TRIASSIC	CARNIVORE	LAND	LAND
CORYTHOSAURUS	3 TONS	30 FT.	CRETACEOUS	HERBIVORE	LAND	LAND
STEGOSAURUS	8 TONS	20 FT.	JURASSIC	HERBIVORE	SWAMPS	LAND

1. Which dinosaurs lived in swamps? _____

2. Which dinosaurs traveled in water as well as on land? _____

3. How many of these dinosaurs were carnivores? _____

4. During which time period did most of these dinosaurs live? _____

5. Which dinosaur lived in the Cretaceous time period and was also a carnivore? _____

6. How many of these dinosaurs weighed over 35 tons or were over 50 feet long? _____

HINT: You could have saved much time if you had used this data base on the computer.

WELL-MANAGED CLASSROOM

Computer Solutions for Your Administrative Tasks

BY SUSAN BAKERSIPE AND DEBBIE FLEISCHMAN

IEP Computer Makeover

It's late at night . . . you are staying up to finish your special needs students' Individual Education Plans. Your hand is cramped from pressing so hard with your pen through the multiple sheets of the form. As you struggle to write just one more objective, your hand gives out. You sit back, massaging your aching fingers, thinking, "Someday, there will be an easier way . . ."

There is an easier way, as special education teachers are learning in Tucson, Arizona!

For those of you unfamiliar with special ed lingo, an Individual Education Plan (IEP) is a required-form document for planning and tracking specific developmental and remedial objectives for each and every student—a paperwork production of mammoth proportions. At the Tucson Unified School District (TUSD), special education teachers now use a computer program that makes quick work of producing IEPs for all of the district's 5,800 special education students.

HOW OUR IEPS WENT HIGH-TECH

Our story begins when the Tucson Unified School District acquired a public domain IEP program for the Apple computer from Scottsdale (Ariz.) Public Schools. The basic program looked great, but we realized that some semantic and technical changes were necessary for the program to meet the needs of our district. With the help of a computer-programmer consultant, Bonnie O'Neil, we came up with a program that allows our teachers to create IEPs that fulfill all of our local, state, and federal program requirements, and, most important, that are flexible enough to meet the ever-changing needs of teachers who work with special needs children.

Designed primarily as a form-maker, the program will create and print individual student IEPs, but does not store them as records. There are programs on the market that do store records, as well as track student progress, and more (see sidebar on next page), but they are also more expensive. (Public domain software is, after all, free!) For us, helping teachers reduce the amount of time they spend on paperwork was the main goal.

ANATOMY OF A COMPUTERIZED IEP

The revised TUSD computerized IEP includes a main program disk and a series of data disks that house the many special education objectives. The program disk consists of several program options that allow teachers to create and update class lists; create and update a directory file of the different subjects for which they'll be writing objectives; set up a materials file that will automatically list the materials needed to meet objectives; add or change objectives; and print final IEPs that list student name, school, subject areas, objectives, and materials needed.

The program's eight data disks include the following subject categories and objectives:

- General special education objectives, touching on basic academic content areas (math, reading, science, social studies) as well as such subjects as behavior, life skills, and occupational training.
- Speech objectives clustered around language, fluency, voice, and articulation.
- Objectives for lower functioning students, including communication, functional academics, independent living skills, fine arts, and occupational training.
- Preschool objectives addressing such subjects as motor skills, self-help, preacademics, and socialization.
- Occupational and physical therapy objectives in such areas as gross motor, fine motor, and functional adaptive skills.
- Community-based objectives involving housekeeping, meal preparation, community resources, personal health care, transportation, recreation, and problem-solving strategies.
- Additional special objectives for bilingual, hearing impaired, and visually impaired students.

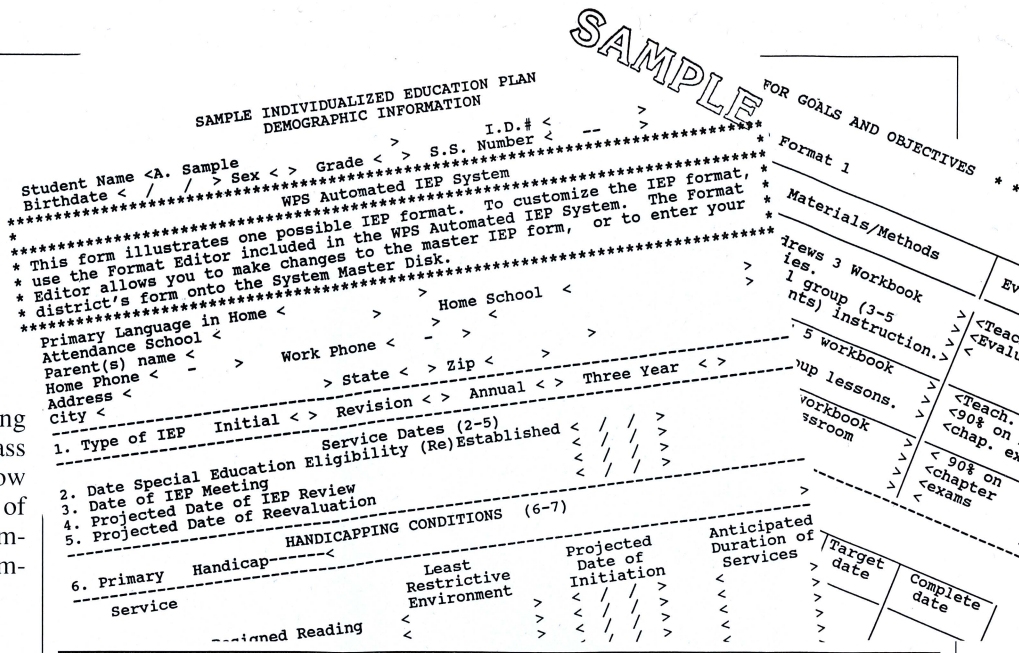
AND THEN IT WAS TRAINING TIME!

Once the program met with district and state approval, we were all set, except for one small detail: people had to be trained. As wonderful as this program is, we knew it would never be used if teachers weren't adequately prepared. Teachers, especially those who are not by nature computer users, must feel comfortable with a program and see its value before they'll ever use it. It was absolutely necessary, therefore, that key computer personnel train teachers and other district professionals. If the computerized IEP program has been a success (and we think it has!), the success is due largely to this priority we have given to training.

In our district, there were approximately 600 special education professionals (teachers, psychologists, administrators) that needed to be trained. In the three years since we introduced the computerized IEP, we've managed to train 400 people, most of them teachers. Training is now mandatory for TUSD special education professionals and we anticipate training the remaining personnel in the next year. We also, for a small fee, travel to other districts to provide training to their teachers. (Any money we earn from our training program goes to the computer resource and training center to fund new software purchases and other projects.)

The computerized IEP is taught in a workshop, held on two consecutive days, three hours each day after school. On the first day, we focus on computer "comfort" and "selling" the program. For the majority of teachers, this is their first exposure to computers. All aspects of computer use are covered, from handling of floppy disks to basic terminology. The rest of the session is spent on explanation and demonstration of the computerized IEP program, showing its various capabilities so that teachers are interested in learning more.

Day two of the workshop is entirely hands-on. Every teacher sits at a computer and we walk them through each



Computerized IEP programs, like this sample form from the UPS Automated IEP System, help special ed teachers minimize the amount of time spent on paperwork, and maximize the time they spend on teaching!

step of creating an IEP, from choosing subject categories, to setting up class lists, to printing out forms. We also show teachers how to make back-up copies of their disks and what the inside of the computer looks like. (This makes the computer a little less intimidating!)

TUCSON TEACHERS REAP THE BENEFITS

We've found that the IEP workshop participants generally can be grouped into three categories: the Eager Beavers—they can't wait to learn this new and exciting tool; the By-the-Bookers—they are told they have to learn this program and, although uncertain, they follow orders; and last but certainly not least, the Skeptics—they cannot understand why they have to spend six hours in a workshop when they can complete all of their IEPs by hand for the semester in the same time period.

By the end of the workshop, however, all of these groups of teachers quickly see that the six hours invested in learning the program will pay off in the long run—because they'll now be able to complete all of their IEPs for the semester in as little time as one hour!

Teachers need to spend whatever extra time they have—outside of teaching—searching for new ways to reach special education students. Computerized IEPs minimize teachers' clerical time and maximize their professional time.

Now, picture this . . .

You are sitting at home planning new teaching strategies because you completed all of your students' IEPs in just one hour at school. The tedious task of writing IEP objectives by hand is over!

Susan Bakersipe and **Debbie Fleischman** are computer specialists for the Special Education Department in the Tucson (Ariz.) Unified School District.

Note: ***For further information about the TUSD computerized IEP training program, contact Susan or Debbie at: TUSD Computer Resource/Training Center, 1695 N. Country Club Rd., Tucson, AZ 85716; 602/798-2056.***

COMMERCIAL IEP PROGRAM SAMPLER

Computerized IEP programs have hit the software market in full force, and there are as many varieties as there are flavors of ice cream. Some are so management-oriented they can modem into state and federal government systems. Some work mostly as templates that allow you to fill in the blanks but don't really manage your records. The prices are as wide-ranging as the program options: from $100 to over $6,000. Clearly, the kind of system you purchase will depend on your school's or district's needs and budget. Here's a sampling:

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IPS (Individualized Planning System), Learning Tools Inc., 248 River View Trail, Roswell, GA 30075; 800/333-9954.

A complete management system that allows users to design and store templates, create and print customized IEPs, reports, form letters, and mailing labels. Stores student files for updating and modification. $895 first copy to a school or district; subsequent copies start at $395, depending on quantity purchased. Apple IIe, IIc, IIGS, MS/DOS, Macintosh computers. Network versions available.

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Modularized Student Management System (MSMS), Education Turnkey Systems Inc., 256 N. Washington St., Falls Church, VA 22046 ; 703/736-2310.

Allows user to create customized IEPs, parent notification letters, federal and other statistical reports. Teachers can track student progress, monitor compliance with the IEPs, customize goals and objective banks. The price is $495 for the first package in a district; additional packages sell for $195. Apple IIe and IIc computers.

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Tally Special Education Management System, a.u. software, Box 8369, Wichita, KS 67208; 316/682-0156.

Four different modules perform various functions: Referral Manager ($195) tracks referrals; Student Data Base Manager keeps complete special education student records ($595); IEP/Objectives Data Base Manager ($295) maintains goal and objectives banks, prints IEPs; Child Count Reporter ($895) produces federal reports. MS/DOS computers. Referral Manager works on Apple II family as well.

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WPS Automated IEP System, Western Psychological Services, 12031 Wilshire Blvd., Los Angeles, CA 90025; 800/222-2670;

Allows teachers to create and personalize IEPs, drawing from disk-based goals and objectives banks. A Rules and Regulations disk allows users to check on special ed program rules while working on an IEP. The basic kit with two goal bank disks sells for $295. Additional specialized goal bank disks start at $39.95 each. Apple IIe, IIc, IIGS and MS/DOS computers.

HE'S USING IT TO UNTRAP HIS SON.

DR. ELDO BERGMAN, CHILD NEUROLOGIST AND SON PHILIP.

Pretend that all the written words in the world: books, newspapers, warnings on medicine bottles, pretend all of it was a puzzle to you; incomprehensible; a source of embarrassment and *terror.*

To millions of people it is; children, adults, wrongly diagnosed as unintelligent or lazy or crazy; people who are none of these things but, like Dr. Bergman's son, dyslexic.

Three and a half years ago, Dr. Bergman decided to try something. Computers, he knew, could *talk*, and by talking might, just might, get his son, and others, out of a trap.

It worked. His son and others are able, suddenly, to "read" by listening; able to comprehend.

And no longer dependent on teachers who don't have time, tutors who cost money.

Philip can now learn as fast as he can think. Dyslexics, it turns out, are often extraordinarily fast thinkers. (Especially when given something to think about.)

Dr. Bergman is accomplishing this small miracle with the Amiga computer. The faster Philip races to catch up with himself, the farther the Amiga can take him: from listening to comprehending to reading to... who knows?

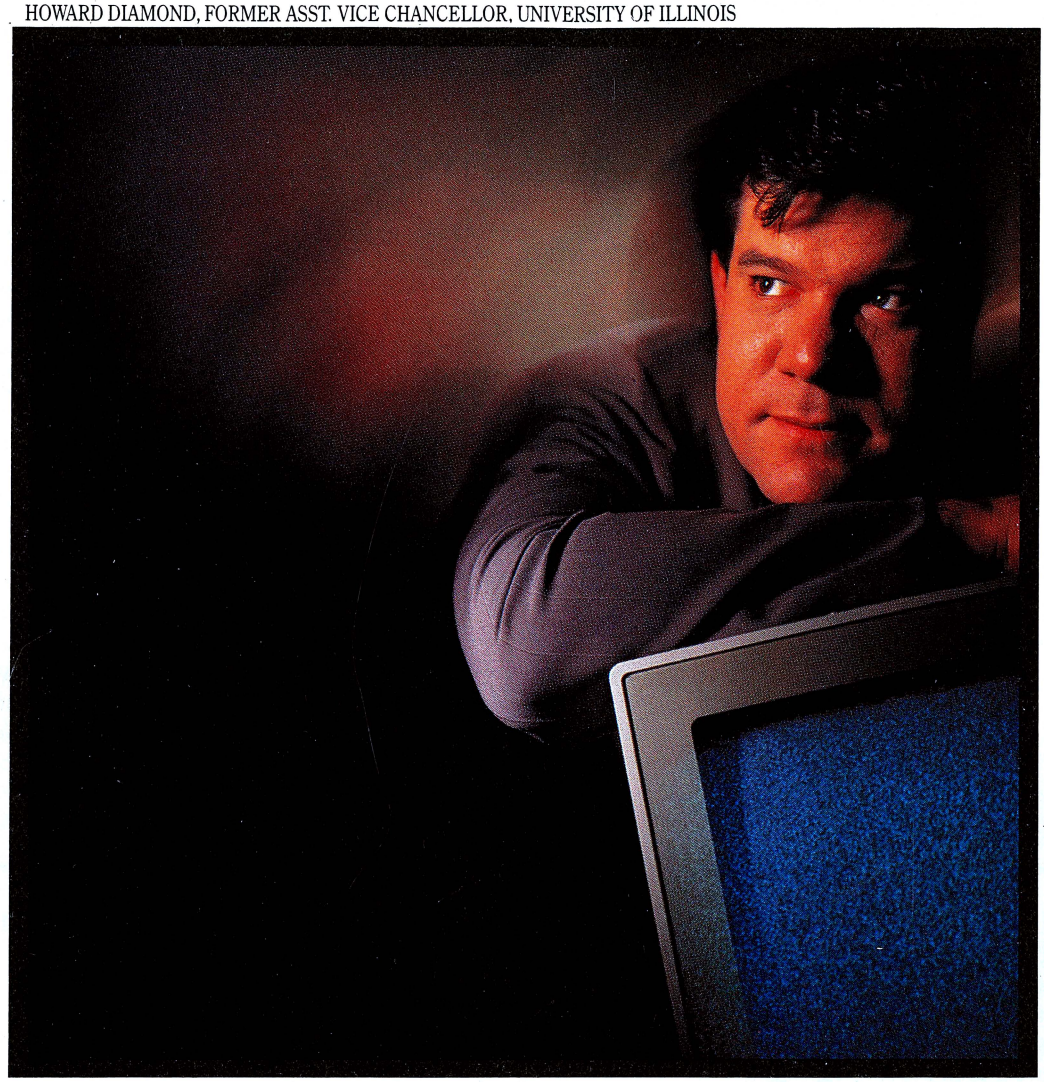
(And later, to create pictures, animate them, three-dimensionalize them, suffuse them with thousands of colors; to arrange, to play, to compose music. The Amiga can do all of this now, not 50 years from now.)

Is Dr. Bergman satisfied with the way things are going? Not entirely. Dyslexic students and their parents embrace what he's done. The schools, meanwhile, are "observing" the situation. Bergman is raising funds now himself for other school districts.

For information on how his program works, the software he's using, or just to offer him a little encouragement, write Dr. Eldo Bergman, at Intelligent Learning Systems, 5322 West Bellfort, Suite 116, Houston, Texas 77035.

"HOW COULD THERE BE THIS TECHNOLOGY I DIDN'T KNOW ABOUT?"

HOWARD DIAMOND, FORMER ASST. VICE CHANCELLOR, UNIVERSITY OF ILLINOIS



Hope you won't be as embarrassed as I was. I'd never even *seen* an Amiga computer, until very recently. How recently?

When the Vice President, who recruited me into Apple left to become President of Commodore who makes the Amiga; and, asked me to join him there as Director of Education.

I didn't turn him down; but I had to get up to speed on this thing called an Amiga.

When I was at the University of Illinois I was as enthusiastic an advocate of computers for education as anyone; later, at Apple, I continued to spread the "revolution."

But the revolution has been a disappointment. You know it, I know it.

Our expectations were high; so too were the costs.

The Amiga, to be blunt about it, is the computer I wish had been available to all of us ten years ago. But it wasn't.

However, today, it is widely embraced by video and graphics and animation and film and science professionals; and artists and writers and medical researchers (and Dr. Bergman, there on the left hand page).

But the Amiga is not widely known among educators.

Not yet.

We intend to do something about that at once.

(There is a videotape, done before I got here, which you owe it to yourself to see. It won't win any Cannes Film Festival awards, but it's genuinely informative and focuses on education and the surprising things the Amiga is doing for those who do know about it.)

Please send for it. It's an eye opener.

My first move is to make significant discounts on the Amiga available to those in education.

After all, we are the first computer company whose president and key people are from and for and of and committed to education.

You'll be hearing from us.

And from the Amiga.

AMIGA. THE COMPUTER FOR THE CREATIVE MIND.™

The Amiga allows you to fly. Faster than you thought you could. Without spending a lot of money. Without waiting around another 50 years. Amiga from Commodore. Why not give us a call at 800-627-9595.

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Circle 26 on Product Information Card.

MICRO IDEAS

EDITED BY LOUISE C. ORLANDO

Quick Computer Tips and Activities

SPECIAL NEEDS KIDS EAGER FOR E-MAIL

What's the most exciting way to motivate special needs students? Open an electronic mail system. We did, and we can't get our students to stop writing!

We started using *Electronic Mailbag* (Exsym) with special needs students in grades 4-8. Soon, we had students rushing to class asking if they could read their mail.

We began this project by setting up a mock post office in our classroom. For two weeks, students practiced their letter writing skills on paper, and brought their letters to the "post office." Next, we assigned each student a computer pen pal to correspond with via the *Electronic Mailbag*, and set a writing requirement of one electronic letter a week. (Students quickly and easily exceeded this.) We also posted a set of simple guidelines for students to follow: use proper English, respect the feelings of others, keep your password to yourself, and end your letters with questions if you want to get a response. As students began to branch out in their correspondence, a user-list of student names was placed next to these guidelines, just in case someone forgot how to spell a name.

The *Electronic Mailbag* is great for teacher-student communication, too. You can send bulletins and notes, reminding students of missed work and congratulating them for a job well done.

Iris Glaser

UNJUMBLING COMPUTER CORDS

As computer-lab teachers, we have seen spaghetti-like mazes of cords become tangled up in chairs and children's feet. And everyone knows that even neat cords don't stay neat for long. So, we decided we needed some sort of device to keep the cords organized and off the floor, yet accessible in case we had to send a computer out for repair.

We have found two effective ways to solve this problem. The first, and least expensive, uses 1-1/2-inch or 2-inch conduit clamps. The clamps cost about 27 cents a piece and can be screwed into the wall or table every two or three feet. They are large enough to handle power cords and cables.

The second solution is the installation of plastic rain gutters. This solution is more expensive, but it is neater because the cords are not seen. Plastic gutters come in 10-foot lengths, brown or white, and cost about $2.77 each. We recommend that you use plastic gutters instead of metal because plastic is lightweight and will reduce the risk of any electrical interference.

The plastic gutters should be fitted under tables or along walls so the cords will not be exposed. First, screw a wood cleat under the tables or on the wall at the height of the tables. (We used a 1" x 2" eight-foot board along the wall and a 2" x 4" under the tables. Drive screws were used to secure the wood.) Next, attach gutter brackets to the cleats. Then snap the gutters into plastic brackets, and thread your cords through.

If dust and dirt still pose problems, cover the gutter with strips of black vinyl runners. They can be cut into four strips and laid on top of the gutters for a finished look.

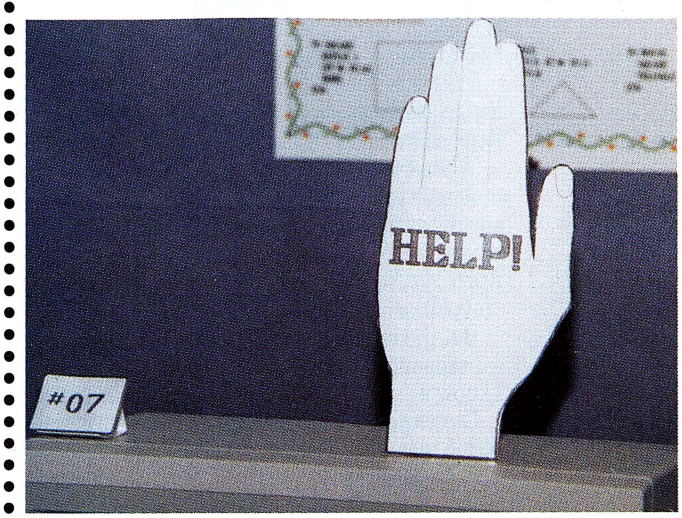
Joan Miller and Martha Roten
Fair Oaks, CA

RAISE A HELPING HAND

Students with computer questions don't have to flock to the teacher for help anymore. Instead, help will find them with a simple flip of a "helping hand."

"Helping hands" are easy for all students to make. Have each student trace and then cut out his or her hand on a piece of oaktag. Then, in big red letters, write the word "HELP" on one side of the hand. Next, laminate the hands for protection. Finally, to make them stand, cut and tape a doubled piece of oaktag to the back. Have students place the hands face down on top of their computers while they work. When they have a question, they can just lift their hand to its upright position—and it's teacher to the rescue!

Laura C. Bullock
Nashua, NH



STUDENTS DESIGN A POTPOURRI DICTIONARY

Every profession uses its own special vocabulary. Sometimes the words are common, but often they are unfamiliar. Here is a way to incorporate these unusual words into an ongoing language arts activity. Using a word processor, have your students create an outline of a dictionary, with each section focusing on a different professional field—sports, clothing, or cooking, for example.

Next, have your students play detective. Ask them to look in travel brochures, menus, want ads, apartment listings, and cookbooks—to name just a few areas of reference—for jargon or words that are profession-specific. For instance, they might run across words like "a la carte" and "sauteed" (food profession), "bodice" and "inseam" (clothing design), and "cut" and "proof" (writing profession).

When the first assignment is finished, have your students use the words to write their own ads or to create a point-of-view story in which they are a character in that specific profession.

Finally, have each student present his or her ad or story to the class. Encourage students to use all the necessary props and costumes that will add to their profession-presentation.

Virginia J. Dixon
Gettysburg, PA

Mike Moran

EDUCATIONAL TECHNOLOGY:

In Search of *Total Solutions?*

Featured Presenters include:
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Phillip Miller, Scholastic Software
John G. Mann, IBM Corporation
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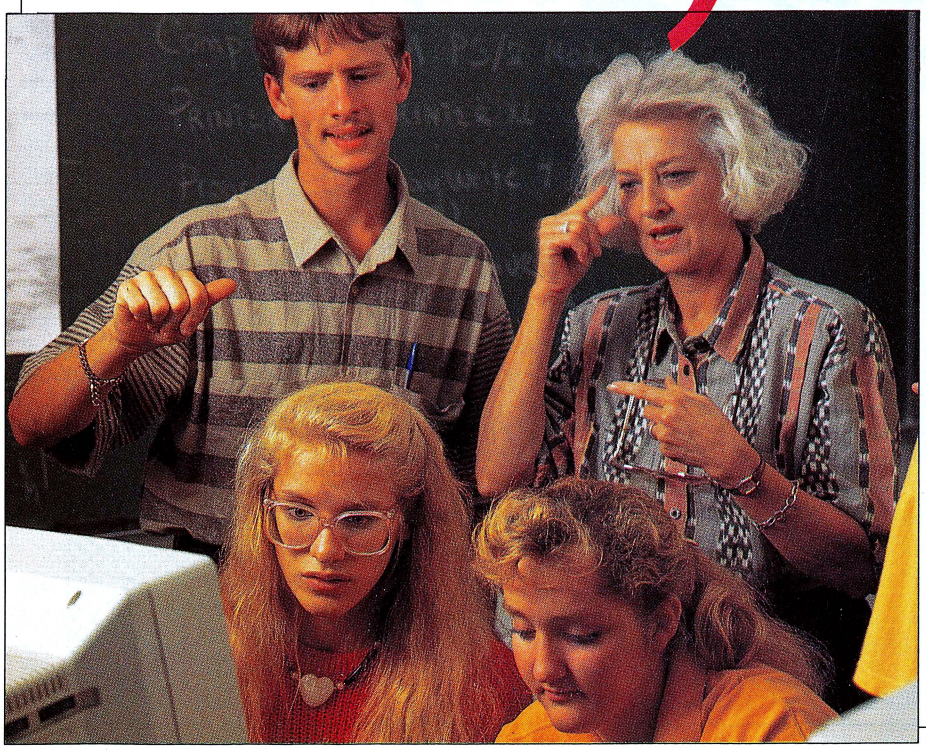
Arizona State University
Tempe, AZ 85287-0908
Phone: (602) 965-7363

A CONFERENCE BONUS is included in this year's conference registration fee. In response to many attendee requests, a **CONCURRENT MINI-CONFERENCE** entitled **"The Technology and The Funding to Acquire It"** will also be featured. This mini-conference will include a concentration of sessions regarding funding and grant opportunities through many major vendors. Noted experts in proposal writing and available government funds will also be featured. This is an absolute must for all individuals responsible for the acquisition of funds for educational technology.

Circle 25 on Product Information Card.

FROM DEAF STUDENTS IN MISSOURI TO EMOTIONALLY DISTURBED KIDS IN LOS ANGELES TO LEARNING DISABLED MIDDLE SCHOOLERS NATIONWIDE, SPECIAL NEEDS TECHNOLOGY SUCCESS STORIES ABOUND!

YES, WE



• AT A GLANCE •

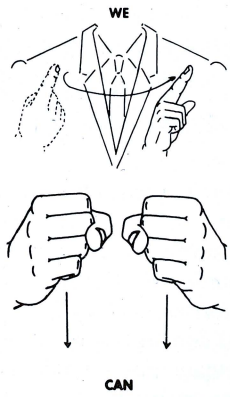
RECENT DEVELOPMENTS
21

NEW FUTURES
22

NATIONAL RESEARCH
20

RESIDENTIAL TREATMENT
23

RESOURCES
21



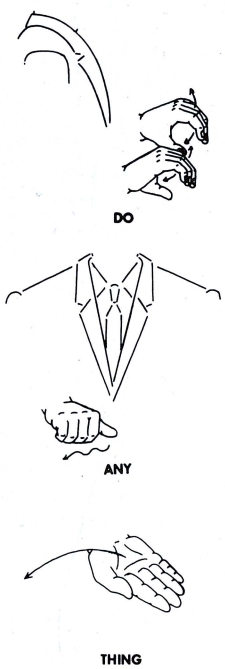
New tools for communication, information, motivation.

CAN!

The scene could be unfolding in your school: Two students are working in the computer lab to create a spreadsheet that will calculate the school's basketball stats, fervently debating over which formulas to use.

The only difference here is that these students are profoundly deaf and communicating problem-solving tactics through sign language. They are students at the Missouri School for the Deaf (MSD) in Fulton, Missouri.

As IBM puts it, a personal computer can be "the window to much of the world for the blind" and a source of "new hope" for "the deaf, the voiceless, slow learners, the mentally retarded, people with brain injuries, and—most dramatically—those contending with severe mobility problems." But realizing the potential of technology for special needs learners has been a slowly accelerating process.

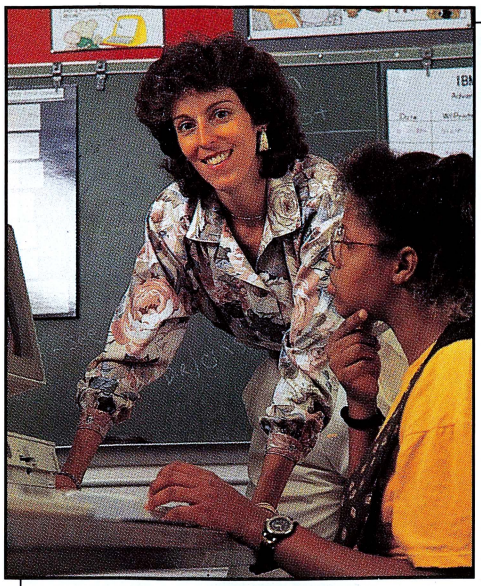


IN THE BEGINNING

Computers infiltrated American education quickly, usually without much advance planning. In regular classrooms, where the ratio of machines to students was usually 1:30, students were soon "fighting" for time on the computer. Special needs students were basically left out of this early computer mainstream. They rarely, if ever, saw any computer time at first. As computers then gradually made their way into special classrooms, it was often accompanied only by modifiable software—that is, software manufactured for regular classroom use which could be slowed down or adjusted for different levels. Teachers in the special needs classrooms found this type of software insufficient for their specific needs. Learning disabled, behavior disabled, slow learners, mentally retarded, and

By Linda Davis

Photos: Julie Robertson; Diagrams: Betty Stewart, *Talk to the Deaf*, Gospel Publishing House



other students needed special software suited to their specific abilities and interests. Physically disabled students also wanted a share of the computer time, but it was evident that many would require some type of adaptable software or hardware.

Because of these inadequacies, the computer was soon being questioned in terms of its educational value for special needs students. Fortunately, a few diligent individuals continued to press for more innovative ideas. They saw the unlimited resources of the computer and endeavored to pursue them.

A CASE STUDY

At MSD, we found ourselves within this prevailing trend. One of the first problems we encountered involved software reading levels. The average deaf high school student reads on a fourth to fifth grade level. If we ordered the correct reading level, the program offered subject matter and feedback that a fourth or fifth grader would enjoy (trains, turtles, and so on)—obviously not ideal for high school students. To help alleviate this, we tried to focus our purchases on modifiable software programs and programs that were limited in graphics (at the risk of diminished general appeal). We also came to depend heavily on the 30-day preview option to make sure software was really useful to us before we purchased it.

Finding appropriate text and classroom material to go with our computer curriculum was also difficult. For example, students in the Advanced Computer Class, working comfortably with computer concepts at the secondary level, had to struggle with computer skills textbooks that were beyond their reading level. The curriculum had to be revised and rewritten to accommodate these different competency levels.

Other challenges soon followed. We first attempted to set up our computer lab in rows, but found that this arrangement made seeing the instructor difficult—a real problem for deaf students, for whom it is vital

Building on student abilities with technology.

Middle School Research Report

by Judy Storeygard and Becky Simmons

"Singing days." This is the term that a seventh-grade resource room teacher we'll call Martha (like all of the names in this article, a pseudonym) used to describe the days she and her special needs students had access to the computer lab. Word processing seemed to bring out the best in her class of "reluctant" writers.

Martha is a participant in a five-year research project which is investigating computer use by middle school mainstream and special education teachers. Conducted jointly by the Educational Development Center (EDC) and Technical Education Research Centers (TERC) and funded by the Office of Special Education Programs (OSEP), the Technology Integration Project focuses on identifying characteristics of teachers and school systems that contribute to successful technology use with mildly handicapped students in the middle school.

The project has defined successful technology integration as the sustained use of technology in a way that promotes and supports special needs students' progress and participation in mainstream learning. In Martha's case, her students' improved writing allowed them to perform more effectively in school. Previously, when limited to pencil and paper, they had struggled with putting their thoughts down and making changes to their drafts. When given the opportunity to use word processing on a sustained basis, each student could concentrate on the process of writing rather than on the mechanics.

What promotes or hinders successful use of technology? As one special education teacher remarked, "I think we all hoped that you would come up with the 12 easy steps of technology integration, but we all know that it's really not that simple." In fact, successful technology integration seems to result from the complex interaction of teachers, administrators, and system-wide policymakers.

Although it is tempting to characterize technology use within a school or classroom in terms of total success or failure, we have found that technology integration is an evolving process, more often than not characterized by a series of small but important steps:

•Initially, Terry did not feel that her substantially separate students had the skills to use software independently: they lacked sufficient motivation, social skills, and vocabulary. After using *The Factory* (Sunburst), a problem-solving piece, she reported that her students were "begging" her to use it. She was pleased and surprised that they could use the software both independently and in small groups.

•Ken, a vice-principal, was unfamiliar with computers. Yet, when he walked by the computer lab, he noticed that students were always engaged in their work. Curious, he took the sixth-grade Logo course along with the students. As a result, Ken became convinced of the value of technology for middle school students, and made hardware acquisition a priority. His efforts led to a creation of a second computer lab.

Our project has analyzed factors that promote steps towards successful technology integration. We have formulated a set of assertions or principles which fall into five categories: collaboration and communication, teacher knowledge and practice, teacher development, technology resources, and school-based facilitation.

Implementing any or all of these "key factors" presents many challenges for schools. By documenting and analyzing the process of technology integration, our project will assist middle schools both in facing these challenges and recognizing the exciting possibilities that technology holds for the special needs population.

Judy Storeygard and **Becky Simmons** are on staff at TERC. For further information about the Technology Integration Project, contact them at TERC, 1696 Massachusetts Ave., Cambridge, MA 02138

to have a clear view of the instructor during signed lectures. We rearranged the lab into a semi-circle, and added swivel chairs to make it easy for students to switch between facing the computer and facing the instructor.

Every aspect of the computer program was examined to insure all possible benefit to the student. We even salvaged an oversize old black and white television from the basement and connected it to a computer. Deaf students are very visual, and the large monitor provided extra stimuli to help reinforce lectures.

NEW HARDWARE, SOFTWARE, SUPPORT

While MSD and schools like it proceeded through trial and error, the technology continued to develop one step ahead of us. Today, I doubt any educator will dispute the fact that we've come a long way in a short time.

The awareness of computer possibilities for special needs students is definitely growing. Two recently formed research and support centers—IBM's National Support Center for Persons with Disabilities and Apple Computer's National Special Education Alliance—have emerged as top industry resources in the area of special needs and computers. And there are many new and exciting technology developments already underway in special needs classrooms:

•For example, blind students can use adaptive tools such as an Echo+ speech synthesizer and VersaBraille from Telesensory Systems Inc. The Echo+ synthesizer is a plug-in board that converts

Resources

NOTE: The array of special needs resources is extensive; this list is intended only to inform educators of some of the possibilities, and encourage further exploration into specific areas of need.

IBM National Support Center for Persons With Disabilities
P.O. Box 2150
Atlanta, GA 30055

National Special Education Alliance
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014

SpecialNet
National Association of State Directors of Special Education
GTE Education Services
2021 K St. NW, Suite 315
Washington, D.C. 20006

Closing the Gap
P.O. Box 68
Henderson, MN 56044

Center for Special Education Technology
Council for Exceptional Children
1920 Association Dr.
Reston, VA 22091

HCCCP
Newsletter of the Handicapped
Children's Computer Cooperative Project
c/o Sherwood Center
7938 Chestnut
Kansas City, MO 64132

Handicapped User's Data Base
CompuServe, Inc.
5000 Arlington Center Blvd.
Columbus, OH 43220

Technology Resources for Special People
Salina Technology Coalition
3023 Canterbury
Salina, KS 67401

Massachusetts Special Technology Access Center
c/o The Exceptional Parent Foundation
605 Commonwealth Ave.
Boston, MA 02215

Nevada Computer & Technology Center for the Disabled
819 Las Vegas Blvd. South
Las Vegas, NV 89101

Technology Center for Special Education
University of Missouri/Kansas City
School of Education
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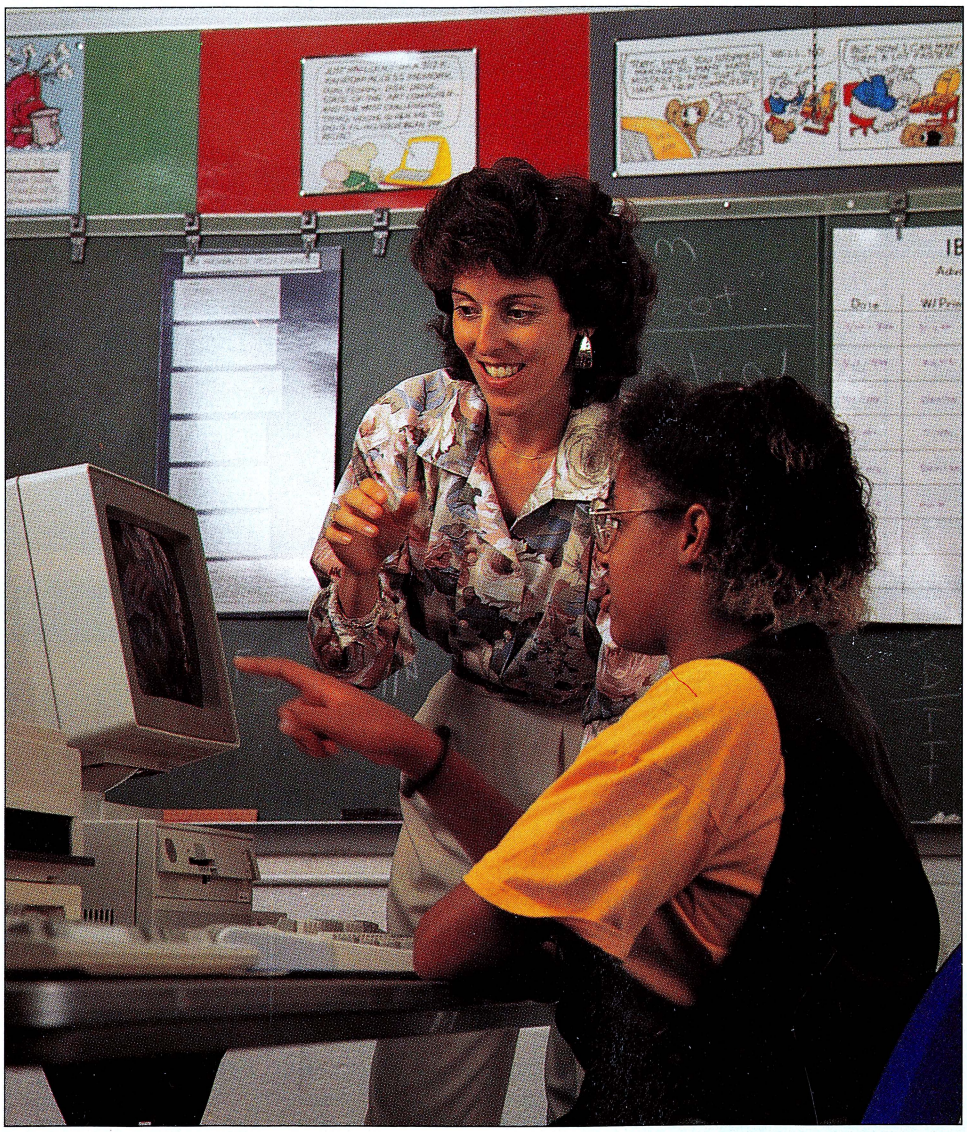
Kansas City, MO 64110-2499



ASCII text to speech. VersaBraille is a machine that connects a braille keyboard to an Apple IIe. It is currently in use by the Visually Handicapped Program in the Los Angeles Unified School District, where students also use a transition and translation software called *BEX* (Raised Dot Computing) to perform word processing. Braille 'n Speak, from Blazie Engineering, is a pocket-sized, battery-operated note-taker with a Braille keyboard and speech output. IBM's Screen Reader allows blind or visually impaired users to hear text just as a sighted person would see it.

•Adaptive keyboard control devices, such as a headstick or mouthstick, may be used by persons with limited physical mobility. For example, Light Talker by Prentke Romich Co. is a device that uses an optical head-pointer, speech synthesis, and special software to allow the user to easily select function keys. To compensate for reduced fine motor control, students may use a key-guard—a keyboard overlay that stabilizes finger, hand, or stick movement for selecting specific keys without accidentally activating others—or keylatches, devices that toggle off and on to lock keys temporarily. A membrane keyboard can be used by those who can more easily press on a flat surface than on raised keys. For those who have trouble targeting standard-sized keys, there are expanded keyboards, while miniature keyboards aid those with a limited range of movement.

•There is even assistance for the special needs student who is limited only to head movement. A device similar to a light-pen sits on the user's head like a headphone and registers head movements as he or she points to a word or character on the screen. For those people who can use only their breath, a "sip and puff" device or a mouth stick might be the answer. With the appropriate control device, such individuals can often use standard off-the-shelf software and hardware.

•For retarded students, personal computers can be effective skill development tools. The computer can present skills at the right level and pace, record progress, chart weaknesses, and offer remedial help in a patient, non-judgmental way. Not all of this is through drill and practice, either. For example, students at Miller School in Burbank, Calif., use *Dr. Peet's Talk/Writer* software from Hartley Courseware to write stories and record sight words, which Mr. Peet "reads" back, using sythesized speech. If students hear a word mispronounced, they know it's misspelled and ripe for editing.

•There's also been plenty of innovation for hearing impaired individuals. Students now have access to special fingerspelling practice software, which presents hands which form the letters of the alphabet in sign language. IBM has recently announced SpeechViewer, a vocalization system which allows a deaf or hearing impaired person to see his/her voice on the screen, then attempt to match proper sounds. Another language software package, *Alpha Project* from Dunamis Inc., displays actual signs from the American Sign Language.

Our dreams are restricted only by those limitations we allow ourselves and others to make.

NEW FUTURES FOR SPECIAL STUDENTS

Today at MSD, computer labs are present in the elementary, junior high, vocational, and high school. The original purpose of the computer program at MSD was to help support concepts from the classroom, but other objectives are now emerging from the computer room. We've developed a computer skills program that begins with introductory applications on the Apple and advances through five stages to desktop publish-

ing, advanced utilities, and data processing skills on an IBM. The program is helping prepare our students for jobs that once were limited to hearing individuals. People everywhere are communicating through computers, linking ideas via local area networks and telecommunications. Communication is no longer limited to the spoken word, and we want our students to seize the moment.

Computers are not only opening new career doors, but also allowing once suppressed thoughts, ideas, and dreams to finally emerge in a new form of communication. The child who was incapable of speaking—once trapped in her or his own mind—can now "talk" through the computer, and be heard.

WHAT LIES AHEAD

If we look at the future of computers for special needs students, it can only be described as exciting. The innovations seem endless, as software and hardware both become more finely adaptable and thus more universal.

I foresee an increase in software specially designed for learning and behavior disabled, mentally retarded, hyperactive, and other students that require special instruction. Certainly, some of the present software can be tailored to meet their needs, but if students require special classroom instruction, specially trained teachers, and special materials, why not target special software that will also meet these specific needs?

Hopefully, computers will continue to break down the misperception of physical disabilities as mental disabilities, so that a greater understanding of the capabilities of every individual may emerge. As bumper stickers in the halls at MSD remind us, "Deaf people can do anything—except hear."

The awareness and understanding of special student needs—and the use of computers to help meet them—will continue to increase. We have only touched the surface of the endless possibilities of this technology. Our dreams are restricted only by those limitations we allow ourselves and others to make.

Linda Davis is computer coordinator/computer teacher at the Missouri School for the Deaf in Fulton, Mo., and a *Teaching and Computers* Teacher Advisory Board member.

Computers and Emotionally Disturbed Children

By William A. Shennum and Marcella C. Nino

As computers become an increasingly essential feature in our schools, they are moving into other institutions which serve children as well—including treatment centers for emotionally disturbed children, such as the Five Acres facility near Los Angeles. At the Five Acres Children's Computer Learning Center, we have learned that in order to successfully use computers with severely troubled children, we must take into consideration their emotional and behavioral difficulties such as poor self-control, low self-esteem, and lack of motivation. Here are some guidelines we use.

•Establish a structured environment: Many children in placement are aggressive, have negative attitudes, or are agitated and/or hyperactive. We have found that establishing a simple, structured, and repetitive routine each time children come to the lab greatly facilitates a successful computer session. Keep the lab well-organized and clean, and the atmosphere calm, friendly, and relaxed. Staff need to be effective and in control, without being overly controlling. Have the children sign in, go to a designated computer workstation, and wait for instructions. Let them know right away (or, if possible, in advance) what they will be working on. Also, be firm in your choice of task assignment, and don't let children argue or bargain their way out of it. It may be helpful to set aside 5-10 minutes at the end of the session for "free choice" use of creativity or entertainment programs, but make sure to let children know when their time is nearly up and they need to wind down.

•Build up children's self-esteem: Another type of problem found among disturbed children is a high degree of emotional sensitivity about abilities and performance. The computer lab gives staff ample opportunities to build up children's self-esteem.

A basic guideline here is to take time to get to know the children, and to let them know that you are glad to see them. As they work on computer tasks which are difficult, praise efforts rather than successes. Create an expectation that the children have many skills, and can develop whatever additional skills are needed to deal with various tasks. Have children help out around the lab by cleaning up, filing papers, and making bulletin boards. Children can also help staff learn and evaluate new computer programs as they arrive.

•Facilitate instrinsic motivation: Lack of motivation is another common problem among troubled children. They tend to expect failure rather than success, and strive to minimize risk. They need to be motivated by significant adults, but more importantly, they need to learn how to motivate themselves.

Computers provide learning experiences which are exciting and rewarding in and of themselves. Make use of this fact to build up an intrinsic basis for motivation. Limit the use of external rewards such as stickers and treats, and encourage the children to come up with their own ideas for special computer projects.

In order for intrinsic motivation to develop, it is important not to give children too much help in their computer work. However, it is equally important not to let them get so frustrated that they give up. Remain aware of when to help and when to step back, according to each child's level.

A final note about "emotionally disturbed" children: As every parent and teacher is well aware, all children display emotional and behavioral problems from time to time as they grow up. Most often, children's problems work themselves out without special therapy; problems which are more prolonged or severe demand treatment. However, the difference between children who live in treatment centers and those who live with their families is only a matter of degree. As they grow up in today's world of technology, we should strive to bring out the best in all children.

Dr. William A. Shennum and **Marcella C. Nino** operate the Children's Computer Learning Center at Five Acres, a residential treatment facility in Altadena, Calif.

Will Your Computers Pass Tomorrow's Tests?

Can your computers pass this simple test?

Do they offer a broad range of advanced courseware?

What about networking and compatibility, or advanced features like multimedia capabilities?

Finally, will the computers in your school be flexible enough to handle your needs in five years? In ten years?

If you answered "no" to any of the above, chances are your computers are failing you.

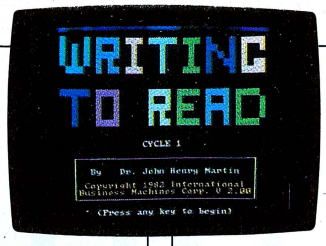
IBM is helping educators all across the country to realize the full potential of computers in schools, in ways they never thought possible.

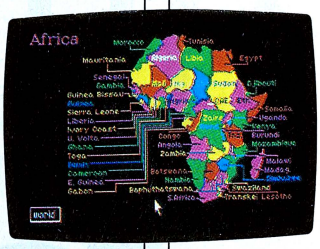
Our courseware has been developed with the help of more than 200 active teachers nationwide—courseware that's advanced, yet simple to use for

students from kindergarten through high school.

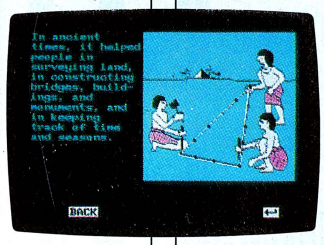
To complement our courseware, we've created a computer specifically for use in the classroom: the IBM PS/2 Model 25 desktop computer.

In addition to offering one of the smallest footprint sizes of any classroom computer (a little larger than a lunchbox), the Model 25 lets you take advantage of superior color graphics capabilities, a large easy-to-read viewing screen and incredible processing power. And since the Model 25 is compatible with other IBM personal systems, the courseware that runs on one PS/2 runs on every PS/2.

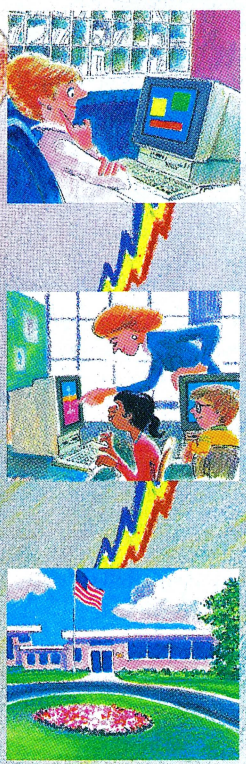




IBM courseware developed with teachers for teachers



No one offers you so many different types of educational tools, or more ways to use them. IBM Networking, for example, lets teachers link their computers to students or to other teachers to share courseware, multimedia programs and other types of information, across the hall, across the building or across town.



As your needs grow and change, IBM also gives you the flexibility to add to your network, whether it's one year down the road or ten.

IBM is also bringing subjects to life in ways you never thought possible. IBM's LinkWay™ software, for example, is a new, fun-to-use interactive multimedia tool that actually allows you to combine text, sound, color graphics and full-motion video.

Using LinkWay, a PS/2 and any combination of multimedia hardware you can create special multimedia programs that work with your curriculum.

And there's so much more we're working on to help you teach. For a free catalog and/or classroom poster (please specify grade level), or for further information, call:

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CONTENTS

WORD PROCESSING JOURNAL 28

DEVELOPING NATIONS DATA BASE 39

SPREADSHEET STATISTICS 37

SAMPLE ESSAYS 37

SPECIAL NEEDS 38

CURRICULUM CONNECTIONS

SOCIAL STUDIES

World geography

Library research

LANGUAGE ARTS

Journal-keeping

Writing fiction from fact

MATH

Working with statistics

Predicting statistical change

Journey TO THE Third

BY ROXANNE B. MENDRINOS

How do you teach students in the United States about the realities of the Third World? Through computer-assisted role play, let them take a walk in the shoes of an "age-mate" from Africa, Asia, Latin America, or the Middle East!

This project invites students to have a more intense understanding of the Third World by selecting and researching a country and then writing a personal essay from the point of view of a child in that country. Using a data base, spreadsheet, and word processor, students manipulate, analyze, and rework the information creatively into a realistic fiction. In effect, they become personally involved and are encouraged to draw conclusions from the data researched.

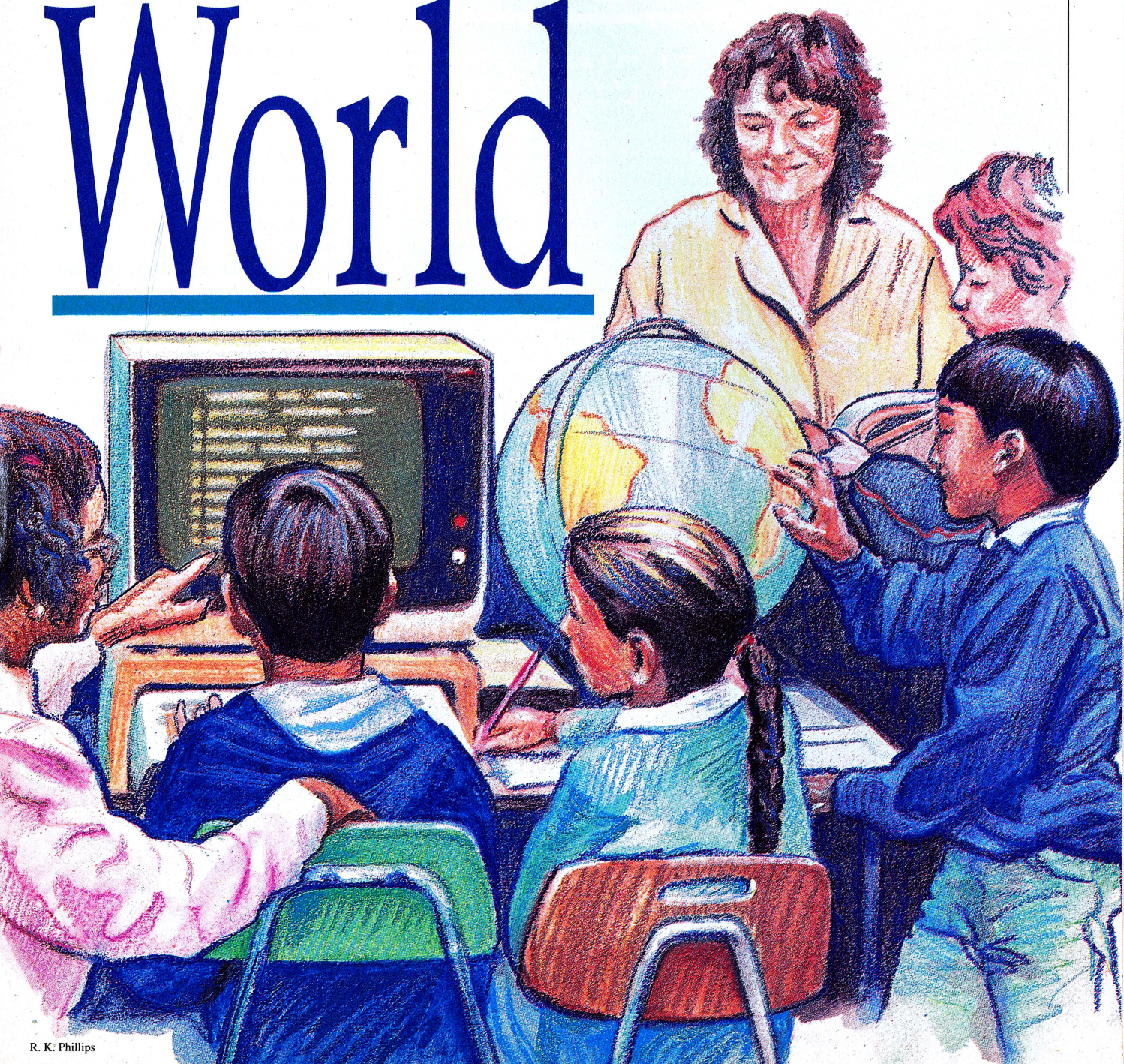
In addition, this unit provides an opportunity for team teaching. Language arts, social studies, and library media staff can work together in a multimedia format to target all learning styles.

Materials Needed: For this project to be most effective, students should have a variety of research resources available to them, including atlases, books, encyclopedias, current newspaper and magazine articles, films, and videotapes. Students will also need access to an integrated tool package such as *AppleWorks* or *Microsoft Works*, plus one "journal" data disk each (see Preparation, below). If available, students could also use a CD-ROM encyclopedia like the *CD-ROM Academic America Encyclopedia* and/or an online data base service such as CompuServe's *Academic American Electronic Encyclopedia* or Dialog's *Classmate Service*, *National Newspaper Index*, and *Magazine Index*.

Preparation: You may wish to set up a Third World Data Base modeled after the chart on page 39 and enter the data listed there for your students to use. (The other alternative is to have students enter the data themselves.) Next, use a word processor to type in and save on a blank, formatted disk the journal outline shown on page 28; make a copy of this disk for each student. Set up a world map or globe to use for your discus-

THROUGH RESEARCH AND IMAGINATION, YOUR STUDENTS WILL DEVELOP A NEW UNDERSTANDING OF DEVELOPING NATIONS!

World



R. K. Phillips

JOURNAL OUTLINE

Note to teachers: *Use a word processor to type in the following outline for student journals. Save it on disk, then make one copy of the disk for each student in your class.*

Directions for students: Once you choose a Third World country to research, use your thoughts and research to fill in the following outline.

ABOUT MY COUNTRY

1. Name of country:
2. Continent and part of continent:
3. Area in square miles:
4. Population:
5. Rate of population growth:
6. GNP/per capita:
7. Life expectancy at birth:
8. Infant mortality rate per 1000:
9. Adult literacy rate:
10. Major occupations/industries:
11. Chief products:
12. Major problems:
13. Possible solutions to problems:

ABOUT MY FAMILY

1. Create a family by describing each of the following members according to age, gender, education, and responsibilities. Choose an authentic name for each member based on your readings or the map of your country.

Father: Mother:
Child 1: Child 2: Child 3:
Child 4: Child 5: Child 6:

2. What our housing is like:
3. What our diet is like:
4. What our standard of living is like:

ABOUT ME

1. My name, age, gender:
2. My responsibilities in the family:
3. How my role is different from my siblings:
4. My schooling or training, now and in the future:
5. What my future opportunities will probably be like:
6. What I could do to improve my standard of living:
7. What future I would like to see for my country:

sion of the Third World in Step One.

Step One:

Introducing the Third World

Begin by asking students what they think of when they hear the term "Third World." Some students may be familiar with the phrase from news reports; others may be aware of Third World cultures and languages. Explain to students that the phrase "Third World" was created to mean those countries that were not aligned either with the United States and Europe ("The West" or "The Free World") or with the Soviet Union and China ("The East"). The term has since come to mean *developing nations*, many of which have gained their independence within the last half-century. Most of these nations are located in Latin America, Africa, Asia, and the Middle East. Although these nations have many circumstances in common, they are extremely diverse in history, culture, language, and resources.

Because these nations are in the early stages of building their own economies and governments, they often struggle with such problems as poverty, famine, political unrest, and overpopulation. The leaders of Third World nations face great challenges in improving the health, education, and living standards of their people, while protecting their nations' resources and security. Some citizens from Third World countries emigrate to the United States and other wealthy nations to seek a better life.

Use a map or globe to help students locate particular Third World nations. If any of your students are from families that have recently emigrated from a Third World nation, you might ask them to point out that nation on the map and talk a bit about what life was like there. You might also show films or videotapes to help your class get a visual impression of life in various parts of the Third World.

Step Two:

Starting a Journal

Journal writing is a necessary and daily component of this project. Hand out the journal disks, and explain to students that they will use the word processor to record all facts, interesting information, and personal thoughts on anything that impresses them about their area of study over the course of this project. (If you have a limited number of computers, you may wish to have students keep daily journals by hand in a notebook, then transfer notes to disk once a week.) At the end of this project, students will use their journal information to write their final essay.

On the basis of their introduction to the Third World, students should now create a list of questions and thoughts in their journal that they would like to address through further research. For example, one student might write, "Do children in the Third World go to school everyday?" Another child might note, "I want to study a nation located on an island." These questions and comments, along with the journal outline, will help students to focus their research.

As the project progresses, review and discuss students' journal disks or printouts periodically. If you are team-teaching, the English teacher should review the use of description, imagery, and different writing styles, while the social studies teacher can review instructions on how to locate facts, research information, and take notes.

Step Three:

Choosing a Country

Students will now search and sort the data in your Third World Data Base to select countries on which they will focus their research.

To start, students can search, sort, and compare information on countries' population, population growth rate, and Gross National Product (GNP) per capita. Some students may wish to choose countries or regions to which they have ancestral ties; others may select countries based on the issues they are interested in (such as the environment, food production, or culture). Encourage students to gain perspective on their target countries by comparing their statistics with those of the United States .

Once students have chosen a country, they can record these initial statistics in their journals and proceed to research more information using a variety of reference sources.

Step Four:

Researching a Country

Books, encyclopedias, almanacs, magazines, and newspapers are excellent places for students to begin their research, as are audio-visual resources. Guide students in selecting research resources to match particular needs. For example:

•**Statistical data:** Almanac, *World Bank's Development Data Book;*

•**Geographic/topographic data:** Maps, atlases, *National Geographic* magazine;

TEACHING

By Janice Sork

COMPUTER CRUSADERS SUPER PAGE SERIES

Each of the six Super Pages in this series features "Super Heroes" especially created to draw students' attention to an essential computer application. The September Super Page explored word processing, October emphasized graphics, while Nov./Dec. will now focus on data bases. Jan./Feb. will explore desktop publishing, March/April will focus on spreadsheets, and May/June will address "future tools."

Each Super Page is backed with a teacher's guide full of management tips and a set of activity cards through which kids master computer applications skills and complete a series of curriculum-integrated computer tasks.

MANAGEMENT TIPS

SUPER HEROES BULLETIN BOARD

The Computer Crusaders Super Page series can continue as the centerpiece of a year-long bulletin board display.

1. Remove the October Super Page, headline letters, record keeping charts and graphics passports. Leave the pocket charts up for new passports and activity cards.

2. Create a cutout letter headline reading, "SUPER HEROES OVERPOWER DATANAUTS IN DATA BASES."

3. Refill pockets with the new Super Hero Passports. (Fill in student names first.)

4. Purchase or create a grid tagboard for the record keeping chart.

5. Staple up November/December Super Page.

6. Mat open space with colored construction paper for displaying student work.

7. Photocopy, cut apart, and laminate several sets of the activity cards, below. Place these in a pocket on the board.

8. Select a data base management program for students to use, such as *Secret Filer, Bank Street School Filer, PFS: File,* or *AppleWorks.* Create the sample data bases specified in each activity, and save each one on a clearly labeled separate disk. Store the data base program and data disks together in pockets on the bulletin board or near the computer.

STUDENT SUPER HERO IDENTITIES

If they have not already done so, have your students make up a super hero name and identity for themselves (including strengths and weaknesses) to use in conjunction with this Super Page series throughout the year. For this Super Page, the student super hero identity will be used for the Super Hero Passport and several activities.

SUPER HERO PASSPORTS

Make a photocopy of the blank passport above for each student. Introduce or review your chosen data base management program, and give students time to learn and practice such functions as: creating a data file, updating an existing data file (adding, modifying, deleting data), searching, sorting (alphabetical and numerical sorts), making a report, saving and printing a report.

There are three achievement levels for students to work towards. Level I denotes mastery of data base vocabulary and entering data into a data file. Level II is for students who can design fields and create their own data file. Level III is for students who can search, sort, and analyze data. As students demonstrate mastery of these skills, mark or add a sticker to the achievement boxes listed on each passport.

SUPER HERO PASSPORT

to the Realm of Data Bases

Earth Name: _____

Super Hero Name: _____

- ○ **Base Basic**
- ○ **Uncanny Creator**
- ○ **Data Detective**

Signed,
Astrodata
Super Searcher

GRID CHART RECORD-KEEPING

The grid chart will help you keep track of student progress on the activity cards. List the activity cards along one axis of the grid, and add your students' names on the perpendicular axis. Paste-on stars, stickers, or a simple felt pen mark can be added as students complete the computer activities.

COOPERATIVE LEARNING ACTIVITIES

Several of the activities below are designed for cooperative learning groups of two to five students each. When forming these groups, make sure that each group has a representative mix of abilities, strengths, and weaknesses, and that each group member has a specific role to play (recorder, reader, checker, and so on). Explain to students that their individual "success" in these activities depends on the total group effort.

ACTIVITY CARD GUIDE

ACTIVITY 1: SUPER POSITIVES

Create a data file called SUPER POSITIVES using the fields listed below. Type a student name in each record. Lead a discussion about positive human qualities such as being thoughtful, helpful, a creative thinker, a good artist, or a strong athlete. Have each student draw a classmate's name at random and enter two "Positives" in the data file. Repeat the activity three times, until each student has a filled record. Check all of the records for spelling and content, then have each student search the data base for his or her own record to print out and place on the bulletin board.

SUPER POSITIVES DATA FILE

FIRST NAME:	**LAST NAME:**
POSITIVE 1:	**POSITIVE 2:**
POSITIVE 3:	**POSITIVE 4:**
POSITIVE 5:	**POSITIVE 6:**

ACTIVITY 2: SUPER HERO REUNION

Create a data file called REUNION using the fields listed below. Print out one empty record and photocopy it for students to fill out by hand before typing their data into the REUNION data base file. (Make sure that several records say "NO" in the R.S.V.P. field.) Have students practice sorting files by last name and first name, searching for other super heroes with similar powers, and so on. Students should then write

GUIDE

Janice Sork teaches fifth grade at Bethany Elementary School in Beaverton, Ore.

three questions that could be solved by doing a sort or search. Collect their questions and assign them at random.

REUNION DATA FILE

EARTH NAME:	HERO NAME:
HOME PLANET:	
POWER 1:	POWER 2:
POWER 3:	
WEAKNESS:	COSTUME:
TRAVEL MODE:	JOB:
HEROIC DEEDS:	R.S.V.P. (YES/NO):

ACTIVITY 3: INCREDIBLE INTERVIEWS

On the blackboard, list the names of specialists and aides in your school. Have students brainstorm questions they would ask these people in an interview, and list these questions on the board. Use the questions and the sample fields below to create a data file called INTERVIEWS. Print out a blank record and copy it for students to use to record notes during their interviews. Pair students up, and assign or have pairs randomly select a person to interview, following the instructions on the activity card. Once the data base is completed, have students search and sort to answer questions about similarities and differences among school staff.

INTERVIEWS DATA FILE

DATE:	TIME:
LAST NAME:	FIRST NAME:
JOB TITLE:	TRAINING NEEDED:
YEARS AT JOB:	OTHER JOBS HELD:
MAKES JOB EXCITING:	MAKES JOB DIFFICULT:
KIDS CAN HELP BY:	FAMILY:
SPECIAL INTERESTS:	HOBBIES:

ACTIVITY 4: DATA BASE SURVEYS

Using the sample questions below, create a data base as an anonymous survey tool to evaluate student's true feelings about your teaching style and effectiveness. Students can then design their own data base survey, on paper, about topics of their choice. If possible, use these ideas to poll students periodically.

SURVEY DATA FILE

SAMPLE QUESTIONS
(CHOICES: A=ALWAYS, S=SOMETIMES N=NEVER)
I understand my teacher's directions:
My teacher is helpful:
My teacher treats me fairly:
My teacher listens to my ideas:
My teacher likes all the students:
My teacher makes me feel good:
My favorite subject is:
My least favorite subject is:

ACTIVITY 5: BOOK REPORT BLASTOFF

Create a data file called BOOK REPORTS, following the sample below; print out a blank record and photocopy it for students to use as a planner. Assign a reading topic such as "Space." Students may select books to read such as fiction, non-fiction, biographies, poetry, or mythology. After reading a book, students will fill in their plan sheet and then enter data into the BOOK REPORT file. Each student should then sort and search the file for another book to read!

BOOK REPORTS DATA FILE

NAME OF BOOK:	KIND OF BOOK:
AUTHOR'S FIRST NAME:	AUTHOR'S LAST NAME:
ILLUSTRATOR:	PUBLISHER:
COPYRIGHT DATE:	MAIN CHARACTER:
MAIN IDEA:	STUDENT REPORTING:

ACTIVITY 6: COUNT ON IT!

Set up a COUNT data file with fields like those listed below (but modify the math operations to fit your teaching objectives and your class's ability level). Each day, challenge students to count something encountered in their normal routine, such as number of minutes spent watching television, number of items in a collection, and so on. Have each student complete one record per day. At the end of the week, each student should search the file to select five records other than his or her own to print out and check for math accuracy. When all of the records have been corrected, sort the whole file by item and print it out for students to illustrate for a bulletin board display.

COUNT DATA FILE

NAME:	DATE:
ITEM COUNTED:	MY COUNT:
ADD 99:	SUBTRACT 17:
MULTIPLY BY 6:	DIVIDE BY 3:

ACTIVITY 7: HISTORY MYSTERIES

Following the model below, create a HISTORY data file for significant events in state, national, or world history. Print out a blank data record, and photocopy it for students to use as a plan sheet. Compile a list of events by name only, and have each student select one to research to fill out a plan sheet for by hand. Students should then go to the computer, enter data for all fields except the EVENT name, and then scramble the data in each field, Datanaut-style (for example, the PLACE for Paul Revere's Ride might come out to be "Ntsboo" instead of "Boston"). Students will print out their records and exchange them, challenging their classmates to unscramble the clues, find the record in the data file, and type in their guess of the EVENT.

HISTORY DATA FILE

EVENT:	KEY PEOPLE:
YEAR:	FACT1:
PLACE:	FACT2:
TYPE:	FACT3:

ACTIVITY 8: SCIENCE SEARCH

Divide your class into cooperative learning groups. Have each group select a science topic, such as astronomy or whales. Groups should develop a research question such as "Are whales in danger of becoming extinct?" Next, they'll gather initial data, design a data record, and devise abbreviations to simplify data entry (see sample). Each team will then compile a data file with a minimum of 10 records to search and sort for an answer to the research question. Have teams print out copies of their sorts and searches to display on the bulletin board with accompanying illustrations and/or graphs.

SAMPLE SCIENCE DATA FILE: WHALES

SPECIES: Blue
PRE-EXPLOITATION NOS.: 200,000+
PRESENT NOS.: 50,000+
B or T TYPE: Baleen
MAIN DIET: Plankton
HOW KILLED: Under guise of scientific research
COUNTRIES: Japan, Norway, Iceland
SOURCE DATA: National Geographic, Vol. 174
SOURCE DATE: December 1988

COPY & LAMINATE

ACTIVITY CARDS

ACTIVITY 1
SUPER POSITIVES

Your teacher will give you the name of a classmate to secretly observe today. Please watch for nice things, "SUPER POSITIVES," that you could say about this person.

Then go to the computer and use your class data base management program. Find the record with your classmate's name and type in two "Positive" statements. (Keep your positives short and sweet—there won't be room for long sentences!) Be sure and save the record when you're done. Your teacher will tell you what to do next.

ACTIVITY 2
SUPER HERO REUNION

Dear Super Hero:

We're having an "Intergalactic Holiday Get Together" on December 15, 1989 on Planet Xoid. Please fill out the REUNION plan sheet your teacher gives you and then type responses into the REUNION data file. Be sure to R.S.V.P. "YES" if you can attend!

Your super friends,
Astrodata & Super Searcher

Read the invitation above and follow the instructions it gives. Be sure to save your record.

After your classmates have entered their records, practice searching and sorting to answer these questions on a separate sheet of paper.

1. Whose name is first when the records are alphabetized by last name?

2. Whose name is first when the records are alphabetized by first name?

3. Who is not able to attend the reunion?

4. Write three questions of your own that can be answered by doing a data base search.

ACTIVITY 3
INCREDIBLE INTERVIEWS

Your teacher will give you and your interview partner the name of a person to interview.

1. Contact that person and make an appointment (date and time) to ask them some questions. Share the appointment information with your teacher.

2. With your partner, practice asking questions while note-taking.

3. For your interview appointment, take along an INTERVIEW plan sheet, several pencils, and a clipboard. Arrive prepared and on time, and be sure to thank the person at the end of the interview.

4. Enter your interview notes into the INTERVIEW data file, and save your record (before the evil Datanauts scramble your memory!). Print a hard copy of your data record for the bulletin board, and add a drawing or Polaroid picture of your subject.

ACTIVITY 4
DATA BASE SURVEYS

Today you are going to take a survey that will help your teacher plan activities in the classroom. The survey is anonymous—you don't have to put your name on it. To take the survey, go to the computer, call up the data file called SURVEY, and answer each question by sharing your true feelings. Remember to save this record.

Next, think of another kind of survey you might like to take in your class or at your school. Write down the survey topic and key questions on a piece of paper, then design a data base record on paper using these questions as fields. Share your design with the class.

Activity Cards

Activity 5
BOOK REPORT BLASTOFF!

It's time to read Super Hero-style!

1. Listen to the reading theme your teacher assigns to the class.
2. Find and read one book related to the theme.
3. Fill out a BOOK REPORT plan sheet on the book you read.
4. Add your data to a record in the BOOK REPORT data file on the computer. Check your spelling.
5. Save your record and then print a copy for the bulletin board.
6. Search and sort the data file for another book to read!

Activity 6
COUNT ON IT!

Here's your chance to find out exactly how many there are of all kinds of things!
1. Each day, pick one thing to count. (How about the number of windows in your classroom, number of minutes you spend watching TV, or the number of baseball cards in your collection?)
2. Go the computer, call up the COUNT data file, and fill in a record about the item you counted that day.
3. When your teacher tells you to, select five COUNT records other than your own to print out and check for correct math.
4. Draw pictures by hand or on the computer to go with your own COUNT records.

Activity 7
HISTORY MYSTERIES

1. Select an historical event from the list your teacher shows you.
2. Do research to fill out the HISTORY plan sheet provided by your teacher.
3. Go to the computer, and enter data about your event into a record in the HISTORY data file—but leave the EVENT field blank.
4. Scramble the data in the other fields, Datanaut-style.
5. Print out your record, and give it to a classmate as a "History Mystery" to solve.
6. When a classmate gives you a History Mystery record to figure out, try to unscramble the clues. Then go to the computer, search the HISTORY data file for that record, and type in your guess in the EVENT field. Print it out for your classmate to check.
7. Think up some new and mysterious events to add to the HISTORY file!

Activity 8
SCIENCE SEARCH

1. With the group your teacher assigns you to, select a science topic.
2. Decide as a group on a research question about the topic.
3. Read and gather data from three different sources or books.
4. On paper, design a data base on your topic. Agree on abbreviations or codes to simplify the data.
5. Create your data base on the computer.
6. Practice sorting, searching, and analyzing data to answer your research question.
7. Print a copy of any sorts and searches for the bulletin board.
8. Add pictures or illustrations.

•**History:** Books, encyclopedias;
•**Language and culture:** Books (including fiction), encyclopedias, video, audio;
•**Daily life:** Books, encyclopedias, magazines;
•**Problems and prospects:** Magazines, newspapers, world organization reports.

Your students will also benefit from using a CD-ROM encyclopedia or an online data base service, if available. A CD-ROM encyclopedia is an outstanding resource of fairly current information, and provides the students with the opportunity of developing logical search strategies without the restrictive costs of online searches. Online data bases provide even more current information on a topic, and go even further in honing search strategy. To make the most effective use of either kind of resource, students will need to plan in advance the kinds of information they are seeking, plus five or more key words (including country name, capital, major products, and important issues) with which to begin their search. Use print resources to help students practice key-word searches and cross-referencing.

Step Five:

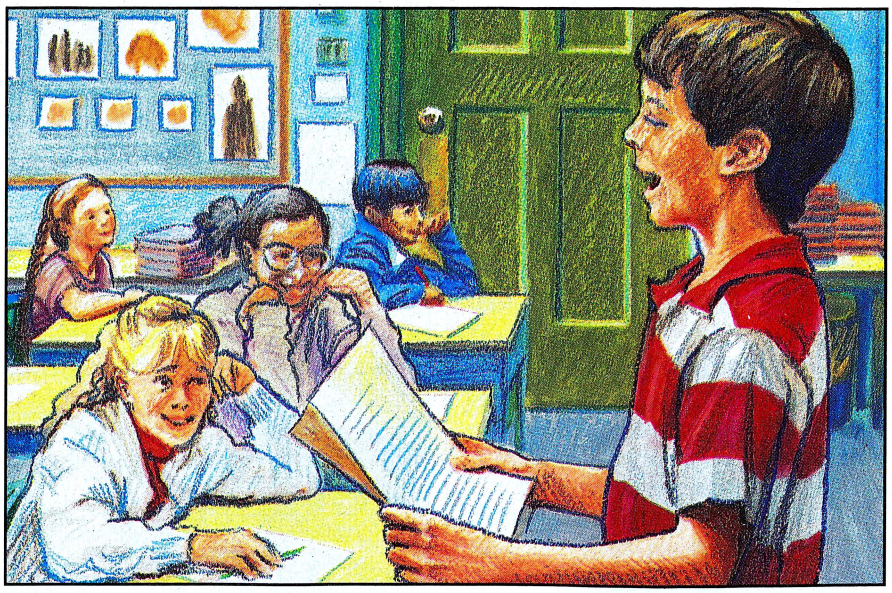
Sensing a Place

In this step, students will begin developing, in their journals, "five senses" lists of images and adjectives to describe their chosen country, based on their research. Words on the list might refer to sights (such as the color of the earth or the shape of village homes); sounds (the pounding surf or the lowing of cattle); smells (burning wood or the perfume of wild orchids); tastes (camel's milk or fresh-baked bread); and textures (sand, a woven blanket). Students should also begin imagining and describing the feelings of a child their own age in that country. Encourage students to strive for vivid but accurate language for their lists.

Step Six:

Working the Statistics

Demonstrate how a spreadsheet works and then have students create one or more of their own to help analyze statistics for their selected country. For example, some students might want to set up a spreadsheet to calculate population figures for their country at the turn of the 21st century, based on current population and growth rates. Other students may want to examine population per square mile, and then com-



BRINGING IT ALL TOGETHER

HERE ARE TWO EXAMPLES OF FINAL ESSAYS BY STUDENTS AT THURSTON JUNIOR HIGH:

Congo

By Meg Kelley

"Bonjour, Pere! Est-ce-que tu as de poisson?"

"Non, je n'ai pas de poisson. A bientot!"

I talk to my father in French, my country's language, while he fishes on the beautiful sea; "No, I don't have any fish. See you later." As I watch my father leave to go catch some fish, the aqua waves with the snow-white foam crash frantically against the cliff. I sadly look after the poorly made boat which my father uses to catch fish. It has sails made of rough animal skin, which is old and worn. My father calls this his trusty little schooner but it obviously isn't a schooner. . . . I love to come here to think. To one side of me is the ocean and to the other is the village. . . . My village is the village of Malu, on the bank of the Congo River. There are some farms in my country but we mainly live from fishing. My name is Sierra Leona of Congo. . . .

Burkina Faso (Formerly Upper Volta)

By David O'Rourke

I doze to my father's deep, mellow voice telling one of his stories of the Mossi people and how they were forced to the north by the French, and how they were once again allowed to migrate to the south—their home on the Red Volta River, where the most fertile soil is. My name is Dakaro Teil. I was born in 1974, which is the year my country was made free from the French. I was born in the village of Bolo, Upper Volta, which is where I live now. In 1984 the name of my country was changed to Burkina Faso as a sign of a breakaway from the old, colonial ways. . . .

pare it with how land ownership is actually distributed. Still others may be interested in comparing their countrys' per capita GNP with those of other neighboring countries to discover patterns and imagine possible development strategies. These spreadsheet figures and the conclusions they inspire should be added to students' journals.

Step Seven:

Writing the Final Essay

Incorporating all of their researched material, personal comments, and observations, students will use a word processor to write a first-person account of life with a fictional family in a Third World country.

First, students should organize their statistical information, sense lists, and other notes into the journal outline format, using your word processor's copy or move function. Have students print out these outlines to review with you for data gaps or misinterpreted information.

Next, students should incorporate the information in each outline section into several complete sentences, written from the viewpoint of a child their age in that country. Remind students to use the first person, and to explain statistical information rather than just reporting it.

Students can build these sentences into a first draft of their essays, which they can then print out and review for spelling, grammar, punctuation, clarity, and accuracy. After making these corrections using the word processor, students will be able to print out a final draft of their essay.

You might encourage students to add a graphic dimension to their essays with maps, charts, or drawings.

Set aside time for students to present their essays to the class. Then hold a discussion about the similarities and differences among Third World countries, and what actions American students might take to assist solutions to Third World challenges.

Roxanne Mendrinos is director of Library Media/Computer Applications at Edmund W. Thurston Junior High School, Westwood, Mass.

Note: A step-by-step guide to implementing this unit in the classroom with worksheets, an AppleWorks *data disk including the spreadsheet templates and the data base of countries of the world, and a training videotape which can visually illustrate the components of the unit to teachers is available through MenCap Productions, 13 Grace Dr., Medfield, MA 02052. The price of the package is $59.95.*

RESEARCH RESOURCES

Books

The Development Data Book, by Harriet Baldwin. The World Bank, Washington, D.C., 1984. Includes social and economic statistics for 125 countries, with maps and charts.

Countries of the World and Their Leaders. Gale Research Co., Detroit, 1987. Yearly subscription series with statistical records and descriptions of lifestyles, customs, and governments.

This Is Our World, by George Kimble. Silver Burdett, Morristown, N.J., 1981. Chapters 12 and 21 of this social studies textbook deal with the Third World.

Illustrated Encyclopedia of Mankind, Marshall Cavendish Ltd., London, 1978. Reference series with illustrations and anthropological information.

Audiovisual Materials

Feeding the Billions, Macmillan, New York, 1976. Sound filmstrip defining key concepts and theories regarding world food policy.

Harvest of Hunger, Oxfam America, Boston, 1986. Slides and cassette exploring the causes of Third World famine.

The World to Come: Exploring the Future, Educational Enrichment Materials, New York, 1980. Solutions and strategies for Third World challenges.

USING THIS PROJECT WITH SPECIAL NEEDS STUDENTS

BY NANCY BLEY

Here are definitions and adaptations for using this class project with learning disabled students.

DEFINITION OF TERMS

Visual discrimination: Students with problems in this area tend to reverse their numbers and letters, especially if the print is too small or too dense.

Visual figure ground: Children with figure ground difficulties often lose their place on a page, particularly if the type is too small.

Abstract reasoning: Students with this disability have trouble relating information and drawing conclusions.

Expressive language: These students have a hard time "getting the words out," orally or on paper, even if they know the answer.

Short-term memory: Students with memory problems may have understood what they read or heard, but have a hard time remembering details.

ADAPTIVE STRATEGIES

Use alternative software: Many integrated software packages, such as *AppleWorks*, use an 80-column screen format that may be too confusing for students with visual discrimination or visual figure ground problems. Use a word processor, data base, and spreadsheet which display and/or print out larger type, even if they are not integrated.

Make resources readable: When assembling materials, remember that students with visual discrimination or figure ground problems may be unable to read maps, almanacs, and other "fine print" text. Use a photocopy machine to enlarge the text, and outline or highlight pertinent information (such as Third World countries on a world map).

Help with organization: Many students with abstract reasoning difficulties need very structured help with organizing their work. Have students type in their own Journal Outline on disk before beginning the project so they can get a clearer idea of what to do, in what sequence, and for how long.

Assist with question-making: Students with expressive language problems may have trouble formulating initial questions. Some can proceed on their own once they've been given key words, such as "school" or "sports." Others may need a list of questions.

Encourage "paper" editing: Students with short term memory problems sometimes have trouble using the MOVE function of a word processor; by the time they locate, highlight, and begin to move a section of text, they tend to forget where it's going. Before students rearrange their journal text into a final essay, have them print out a hard copy, highlight each section to be moved, and place a "1" and a "2" in the margin to help them remember what they are doing.

Nancy Bley is academic coordinator at the Park Century School in Los Angeles, Calif.

COUNTRY	AREA OF WORLD	POPULATION	POP. GROWTH RATE	GNP/ CAPITA
Afghanistan	ASIA	16.3	2.4	168
Algeria	AFR	19.6	2.9	1,951
Angola	AFR	7.8	2.3	500
Argentina	SA	28.2	1.5	2,331
Bangladesh	ASIA	90.7	2.6	119
Benin	AFR	3.6	2.7	320
Bhutan	ASIA	1.3	1.9	80
Bolivia	SA	5.7	2.5	570
Brazil	SA	120.5	2.5	1,523
Burma	ASIA	34.1	2.1	190
Burundi	AFR	4.2	1.9	230
Cambodia	ASIA	.0	.....	100
Cameroon	AFR	8.7	2.0	880
Central Africa	AFR	2.4	2.1	320
Chad	AFR	5.0	2.0	73
Chile	SA	11.3	1.9	2,560
China	ASIA	1000.	2.0	566
Colombia	SA	28.	2.4	1,112
Congo	AFR	1.7	1.7	500
Costa Rica	CA	2.3	3.0	1,430
Dominican Rep.	CA	5.6	2.9	1,260
Ecuador	SA	8.6	3.3	1,180
Egypt	ME	43.3	2.4	650
El Salvador	CA	4.7	2.9	650
Ethiopia	AFR	32.0	2.3	140
Ghana	AFR	11.8	2.6	400
Guatemala	CA	7.5	3.1	1,140
Guinea	AFR	5.6	2.9	300
Haiti	CA	5.1	1.6	300
Honduras	CA	3.8	3.2	600
Hong Kong	ASIA	5.2	2.3	5,100
India	ASIA	690.2	2.2	260
Indonesia	ASIA	149.5	2.2	530
Iran	ME	40.1	3.0	....
Iraq	ME	13.5	3.3	....
Israel	ME	4.0	3.0	5,160
Ivory Coast	AFR	8.5	4.6	1,200
Jamaica	CA	2.2	1.5	1,180
Japan	ASIA	117.6	1.1	10,080
Jordan	ME	3.4	3.3	1,620
Kenya	AFR	17.4	3.7	420
Korea Dem. Rep.	ASIA	18.7	2.8	....
Korea Rep.	ASIA	38.9	2.1	1,700
Kuwait	ME	1.5	7.8	10,900
Laos, PDR	ASIA	3.5	1.7	80
Lebanon	ME	2.7	1.9	.....
Lesotho	AFR	1.4	2.2	540
Liberia	AFR	1.9	3.3	520
Libya	ME	3.1	4.1	8,450
Madagascar	AFR	9.0	2.3	330
Malawi	AFR	6.2	2.9	200
Malaysia	ASIA	14.2	2.7	1,840
Mali	AFR	6.9	2.6	190
Mauritania	AFR	1.6	2.3	460
Mexico	CA	71.2	3.2	2,250
Mongolia	ASIA	3.0	.....	95
Morocco	ME	20.9	2.8	860
Mozambique	AFR	12.5	3.0	....
Nepal	ASIA	15.0	2.2	150
Nicaragua	CA	2.8	3.2	860
Niger	AFR	5.7	3.2	330
Nigeria	AFR	87.6	2.5	870
Pakistan	ASIA	84.5	3.0	350
Panama	CA	1.9	2.6	1,910
Papua New Guinea	ASIA	3.1	2.3	840
Paraguay	SA	3.1	2.6	1,630
Peru	SA	17.0	2.7	1,170
Philippines	ASIA	49.6	2.9	790
Rwanda	AFR	5.3	3.0	250
Saudi Arabia	ME	9.3	4.1	12,600
Senegal	AFR	5.9	2.5	430
Sierra Leone	AFR	3.6	2.5	320
Singapore	ASIA	2.4	1.8	5,240
Somalia	AFR	4.4	2.8	280
South Africa	AFR	29.5	2.6	2,770
Sri Lanka	ASIA	15.0	2.0	300
Sudan	AFR	19.2	2.6	380
Syria	ME	9.3	3.5	1,570
Tanzania	AFR	19.1	3.1	280
Thailand	ASIA	48	2.8	770
Togo	AFR	2.7	2.8	380
Tunisia	ME	6.5	2.1	1,420
U. Arab Emirates	ME	1.1	13.7	24,660
Uganda	AFR	13.0	2.8	220
United States	NA	229.8	1.1	12,820
Upper Volta	AFR	6.3	2.0	240
Uruguay	SA	2.9	0.6	2,820
Venezuela	SA	15.4	3.4	4,220
Vietnam	ASIA	55.7	3.0	300
Yemen Arab R.	ME	7.3	2.7	460
Yemen, PDR	ME	2.0	2.3	460
Zaire	AFR	29.8	2.5	210
Zimbabwe	AFR	7.2	3.3	870
Zambia	AFR	5.8	2.9	600

AFR = Africa; SA = South America; CA = Central America; NA = North America; ME = Middle East
The population has been measured in millions; the growth rate, millions per year;
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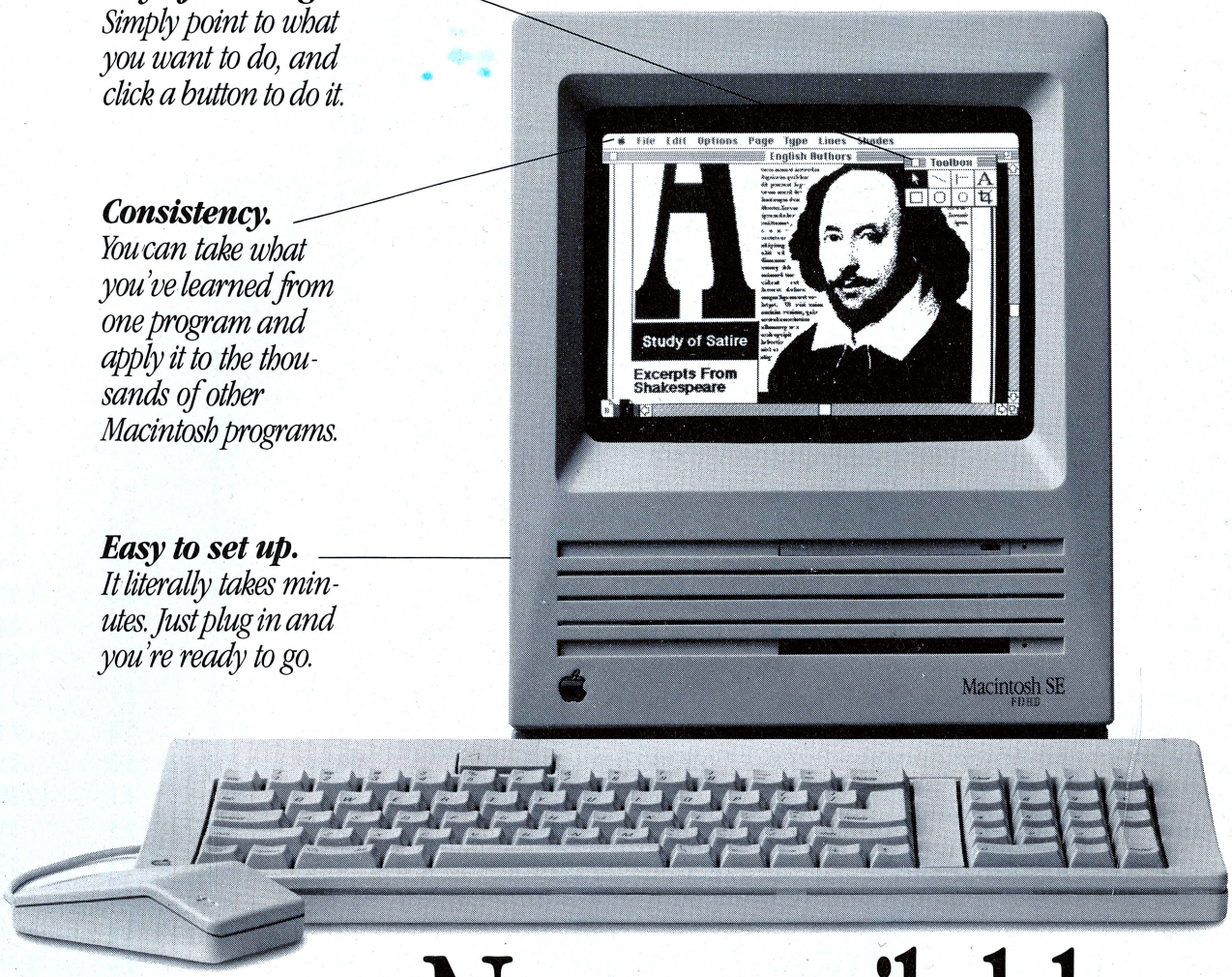

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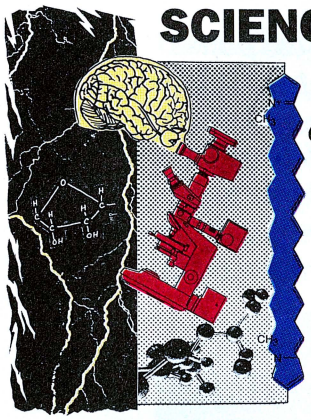
ELECTRONIC LESSON PLANS

Computing in the Content Areas This Issue:

SCIENCE
"T" Is for Tooth.....42

MATH
Feast Day Word Problems...43

SOCIAL STUDIES
Career Quest.....47



SCIENCE

"T" IS FOR TOOTH

Curriculum Objective: *Learning about proper dental care*
Computer Skill: *Using data base, word processing, and graphics software*

Teaching children about the importance of dental care is easy. Getting them to understand that importance can be a challenge. With this lesson plan, your students will reinforce their data base and word processing skills, while strengthening their understanding of dental care.

Materials Needed: You will need data base, word processing, and graphics/printing software. Also, if available, it would be helpful to have on hand a model set of teeth with a toothbrush for a demonstration.

Discussion: Demonstrate for your students the proper way to brush teeth, using a large model set of teeth if possible. Students should be advised to use a soft toothbrush, and brush in up and down, back and forth motions. Remind them to brush their back teeth and their tongues. Tongues can carry bacteria that can cause bad breath.

Tell students that they will be using a data base management program to create an "oral alphabet." When the data base is complete, students will use it and a word processor to write poems about teeth.

Activity: Look over the sample alphabet on page 43 and set up a simple data base consisting of two fields per record: LETTER and WORD OR PHRASE. Assign three or more letters of the alphabet to each student. For a varied data base, the same letters should be assigned to more than one student. Next, have each student write one word or a short phrase that uses the assigned letter to tell something about teeth, the mouth, or good dental care. Then, have each student enter his or her letter and word or phrase into the data base. Have each student search the completed data base, select one word for each letter of the alphabet, and print out his or her selections.

Activity: Have students use the alphabets they created and the classroom word processing program to write poems about teeth. For instance, they may choose a word from their alphabet to create an acrostic poem (like "Floss," below), or they may want to write a silly poem about a toothy situation (like the alligator poem below). When their poems are complete, have students save them on disk and print them out.

First I like to brush my teeth, I
Like to make them shine
Oh they look so white they
Sparkle when I
Smile

• • • • • • • • • • • • •

An alligator has big teeth
And when he opens wide,
It makes me happy
That I only have
Thirty-two
Inside

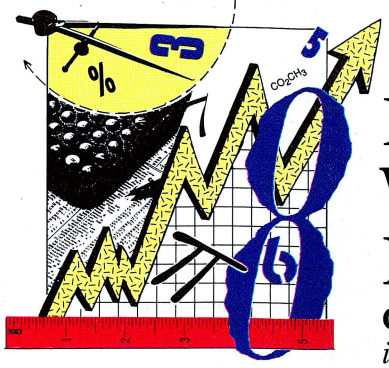
It must take an alligator
At least two hours to brush his teeth,
Because he has so many.
Now the beaver with his two front teeth has it pretty easy.
And what about the bird that has none, how boring that must be!
So I think that
thirty-two,
Are just enough for me.

Activity: Create a "Toothy" bulletin board with the alphabets and poems. Using a graphics program, have each student illustrate an alphabet word or poem. You might create a smile with a set of 26 teeth as an alphabet backdrop, with each tooth holding an illustrated letter or phrase. Or you could show toothbrushes topped with illustrated tooth-poem "toothpaste"!

Extension Activity: You can use a similar data base design to create alphabets for many other science and health topics, such as nutrition, the environment, safety, and body systems. Once students have entered their chosen words into the data base, they can illustrate the concepts using a printing/graphics program, write songs or poems incorporating several topical words, or create "chain stories" in which each student adds a topic-word sentence to a continuous class narrative on the word processor.

Louise C. Orlando, *New York, N.Y.*
Debbie Marino, *Massapequa Park, N.Y.*

MATH



FEAST DAY WORD PROBLEMS

Curriculum Objective: *Solving math word problems*
Computer Skill: *Using a word processing program*

TOOTHSOME ALPHABET

LETTER	WORD OR PHRASE
A	Apple
B	Brush after eating, Braces, Baby teeth
C	Cavities
D	Dentist, Decay
E	Enamel
F	Flouride, Floss, Filling
G	Gums
H	Halitosis
I	Incisors
J	Jaw
K	Know how to floss
L	Look while you brush
M	Molars
N	New toothbrush twice a year
O	Oral
P	Plaque
Q	Questions? Ask your parents!
R	Rinse after brushing
S	Smile, Sugar-free gum
T	Tooth, Tartar, Tongue, Toothpaste
U	Use your own toothbrush
V	Visit a dentist
W	Wisdom teeth, White
X	X-ray
Y	Your teeth are important!
Z	Zap away cavities!

Thanksgiving is a time when people gather to show gratitude for all that they have. It is also a time to remember the first Thanksgiving, when the Pilgrims and American Indians sat down together to share their harvests.

With this lesson plan, imaginary families from different countries will gather to share their first Thanksgiving dinner as guests of a U.S. family. Your students will use a word processing program to solve math problems that relate to a Thanksgiving feast of the 1990s.

Materials Needed: You'll need your favorite word processing program and several blank formatted data disks. For the extension activity, you'll also need supermarket advertising fliers from your local newspaper.

Preparation: Using your word processing program, type in and save the FEAST DAY text file, below. As each activity is completed, you may have students make a printout, save their work on a data disk, or both.

Discussion: Before beginning to attack a math word problem, it is important to understand what has to be done. Review with your students the steps involved in solving math stories. They should first read the problem, and decide what the question is. Next, they must search for the facts. What are the important words and numbers? Will they have to add, subtract, multiply, or divide? Explain that sometimes it is necessary to do some preliminary detective work before the final computations. After these preparatory steps have been taken, your students will be ready to do the required math work.

Activity: Boot up the FEAST DAY text file, and set up a schedule so that everyone has a turn at the computer. Instruct each student to add his or her name to the end of the file (where it says "My name is _____") when it is his or her turn.

This activity focuses on searching for the facts. Explain that each Feast Day question should be read carefully. Instruct students to use the underline or boldface feature of your word processing program to highlight the words and numbers that will help them solve the problem. If your software program has a choice of fonts, you might want your students to use different letter styles for these key words and numerals.

After locating and marking all key words in each question, have each student save the file using his or her own name followed by the numeral 1 (for example, DAN1). You can determine if the concepts involved in each problem were understood before the actual computations are made by checking the individual files. Printouts will vividly show which words in each question the student thought were important. This activity can help determine which type of word problems need additional practice.

Activity: Now that the key elements of each question have been identified, students are ready to solve the problems. Instruct each student to retrieve his or her own file from the first activity. If you have access to a printer, each child can be given his or her own personalized

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worksheet, using his or her work from the first activity. Mathematical work can be done directly on the computer for those classes where the work cannot be printed. This revised file can be saved under the child's name plus a 2 (for example, DAN2) as in the previous activity, so that you can review the results at another time.

Activity: To prepare for this activity, copy the menu and questions from the FEAST DAY text file onto another data disk. The guest list is no longer needed. Have each student type in his or her own guest list, inviting those people with whom he or she would like to share Thanksgiving dinner. Using the new information, the math word problems from this file can now be answered again. Work should be saved with the child's name plus a 3 (e.g. DAN3) as the filename so that you can review his or her work later.

Extension Activity: Plan your own imaginary class Thanksgiving feast.

FEAST DAY Text File

Carrie and Paul had been talking about the first Thanksgiving in school. Learning about the Pilgrims made them think about their classmates who were new to this country. They thought it would be fun to invite some friends to share their family's feast this year. With their parents' help, the following guest list was made:

- **Carlos, Maria, Mr. and Mrs. Santos**
- **Ivan, Tanya, Mr. and Mrs. Ivanovich**
- **Monique, Renee and Ms. Cartier**
- **Arisa, Kim, Mr. and Mrs. Chu**
- **Mr. Martinez, their neighbor**

Families will bring a dish that might be served in their home country. This may be an unusual Thanksgiving feast. Here is their menu:

THANKSGIVING MENU

Beet Soup
Roast Turkey
Rice with Chestnuts
Cranberry Eggrolls
Sweet Potatoes
Beans and Giblets
Honey Dipped Biscuits
Apple Pie

Use this guest list and menu to help Carrie and Paul prepare for their family feast. Read and complete the word problems to the right. Use paper if you need to, but be sure to type in the formula you used to solve the problem. When you're finished, remember to save your answers on the disk.

Have students work in groups of four to prepare a shopping list. Tell them that they only have a certain amount of money they can spend. Next, distribute copies of supermarket advertisements from your local newspaper. Each group should note how much each item will cost, then total its list. The result is a quick hands-on classroom experiment in comparison shopping.

Terry Rosengart
PS 26, Bronx, N.Y.
(Continued on page 47)

1. Four families have four people, one family has three people, and one family has one person. In all, how many people will be at the Thanksgiving Feast?

2. It takes six apples to make a pie. If Carrie bakes three pies, how many apples will she use?

3. Paul is setting the table. He has 14 water glasses. There will be 20 people at the dinner. How many more glasses must he get?

4. Ivan has prepared 32 cups of beet soup. Each person will get a one cup serving. How much will be left over?

5. Paul baked two dozen sweet potatoes. If each person eats one potato, how many potatoes will be left over?

6. Each apple pie is cut into eight pieces. There are two pies. How many people can have a piece of pie?

7. One cup of rice serves four people. How much rice should Carlos cook?

8. Kim has 240 cranberries to put in 20 eggrolls. If he puts the same number in each eggroll, how many cranberries will each piece have?

9. The turkey must cook for 1/2 hour for each pound. At that rate, how long should a 14-pound turkey cook?

10. The biscuit recipe makes enough for 10 servings. If each person wants two biscuits, how many recipes should Renee make?

MY NAME IS_____

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```
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getpage "USSR
wait 40
getpage "parade
...(include all the events)
end
```

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Type: news

Discussion: How does the news on television differ from news in the newspaper?

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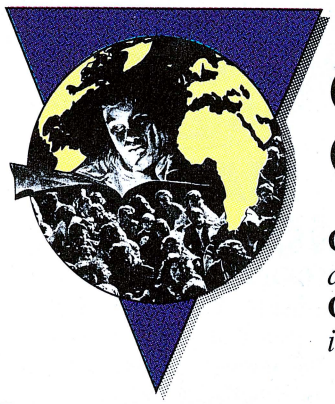

SOCIAL STUDIES

CAREER QUEST

Curriculum Objective: *Learning about different careers*
Computer Skill: *Creating and using a data base*

"What do you want to be when you grow up?" While it's too soon for your students to have a definitive answer to this often-asked question, it's not too early to start familiarizing them with the occupational opportunities that are available.

With this data base lesson, students will track down and use information concerning all types of job possibilities, while brushing up on their computer skills at the same time.

Materials Needed: For the core of this lesson plan, you will need a data base management program and a printer. Other activities require a word processor, desktop publishing program, and/or graphics program. Have on hand resource materials about careers and a list of people who might be willing to talk about their work.

Preparation: Use your data base program to set up a file with fields based on the following model (adapted to meet your data base program's specific requirements). Print out a blank record and photocopy it for students to use as a worksheet.

OCCUPATIONS DATA FILE
NAME OF JOB:
JOB DESCRIPTION:
SCHOOLING NEEDED:
SPECIAL SKILLS NEEDED:
AVERAGE YEARLY INCOME:
WORK ENVIRONMENT (OFFICE, FACTORY, OUTDOORS):
WORK SCHEDULE (HOURS, SEASONS):
DRESS/APPEARANCE:
HELPFUL PERSONALITY CHARACTERISTICS:
POSSIBLE OCCUPATIONAL HAZARDS:

Discussion: Tell your students that they will be assembling a data base of information about many different kinds of jobs. They will be gathering their infomation from books and magazines as well as from people who actually do those jobs.

As a class, brainstorm a list of occupations, enough so that every student can research a different one. Hand out the blank data records, and review them with students to make sure they understand what information is needed in each category.

Activity: Have each student choose one career to research. Then, if possible, launch the research phase of this lesson by hosting a Career Day at which parents, friends, and members of the community come in and talk about their jobs. Alternatively, help students to set up interviews with career representative contacts outside of class. Have students flesh out their interviews with library research.

Activity: Once students have gathered enough information to complete their pencil-and-paper data records, hold a class discussion about the kinds of facts they'll be entering into the data base. Help students develop concise, consistent ways to record information about schooling requirements, occupational hazards, and so on. You might also take time now to review your data base program to make sure students can enter and manipulate data comfortably. Then have each student enter his or her data and print out the record for you or another student to check.

Activity: Assign each student to think of a "wish list" of three things he or she might look for in a job someday—such as the ability to work outdoors, a salary of more than $100,000 per year, or no more than high school education needed. Then have each student search the data base for as many jobs as he or she

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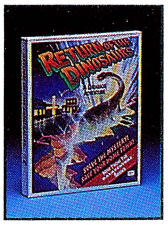

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can find that match one or more of those wishes.

Activity: Have students randomly select occupations from the data base (perhaps jobs beginning with the same letter as their first or last names) and write up imaginary "Want Ads" for those positions. Students might use a desktop publishing or graphics program to "typeset" and illustrate their ads.

Activity: Have each child choose an occupation that he or she is most interested in. Then separate students into groups by related professions—for instance, all the students who chose a career in a medical profession should be grouped together, while students interested in teaching professions are put in another group. Have each group work together, using your word processor, to write a dramatic skit based on its members' professions, a la *Hill Street Blues* or *St. Elsewhere*. Have each group perform its skit for the class.

Activity: Cap off the lesson by playing a fun game called Shopping Spree. Use your word processor to create a "Shopping List" form with the following information:

NAME:
OCCUPATION:
YEARLY INCOME:
PURCHASES (leave up to 10 blank lines):
TOTAL: $

Once again, have each student randomly select an occupation from your data base; students should then make up a silly name of a person who has that occupation (such as Roto Rooter for Plumber, or Ima Goodegg for Chicken Farmer). Tell students that the Acme SuperDuper Shopping Mall is sponsoring a contest in which the first person to spend his or her entire yearly income on job-related goods at the mall (which sells everything under the sun) will win one million dollars. Student must use the data base and their imagination to come up with an appropriate shopping list (see the example in the box below). Have students total up their shopping lists and post them, with illustrations, on a classroom bulletin board.

Jill L. Tucci, Edinboro, Pa.

CAREER QUEST SHOPPING SPREE

SAMPLE SHOPPING LIST

NAME: Rita Word
OCCUPATION: Writer
YEARLY INCOME: $28,000

PURCHASES:	
1 phone-equipped Jeep	$13,391
1 home computer	$2,500
1 laptop computer	$2,000
80 notepads	$4.49 each
120 pens	$1.64 each
2 pairs of shoes (for tracking down stories)	$76.50 each
12 roundtrip plane tickets to Washington, D.C. (for monthly interviews with the President)	$450 each
1 year's worth of online data base time	$1,000
Printing service for weekly bulletins	$3,000
TOTAL: $ _____	

HAPPY HOLIDAYS!

SPIRIT OF GIVING

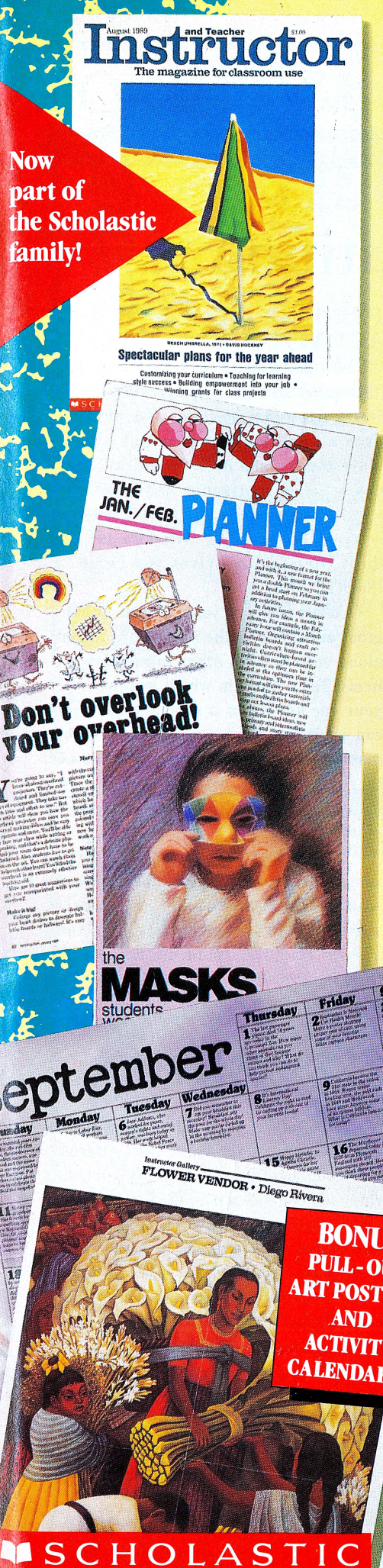
Whether it's Chanukah, Christmas, or Kwanzaa that your students celebrate, the winter holidays emphasize goodwill. Challenge students to demonstrate their humanitarian spirit by generating a "gift list" of holiday wishes from themselves to the world. Using your word processor or graphics/printing program, set up a template document into which each student will enter his or her name, a goodwill wish (such as, "May the people of the Middle East receive the gift of peace this holiday season"), and an illustration, if possible. Have students take turns creating wishes and printing them out to post on the bulletin board.

DESIGN A NEW YEAR

"Auld Lang Syne" and a countdown to midnight aren't the only symbols of a New Year. Have your students read about new year celebrations in different cultures, including the Jewish New Year (Rosh Hashanah) and Chinese New Year. Then use your classroom graphics/printing program's greeting card function to set up a blank party invitation, and challenge each of your students to dream up a new year celebration of his or her own. Each student must decide when the new year should begin and why, and what rituals should accompany it (fresh paint for the classroom? new names for everyone? ice cream all around?). Have students print out and exchange invitations.

BEST AND WORST

Set up a data base with these three fields: HOLIDAY, BEST, WORST. Challenge your students to take turns going to the computer and typing in what they think is the best and worst part about each of the winter holidays (for example, "Christmas," "Lots of presents," "Over too soon"). After each child has completed several records, sort the file by each field and print out for a fun-filled class discussion!



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CREATIVE COMPUTING STUDIO

Task Cards Series for Unlocking Creative Thinking Skills

BY THOMAS E. BOUDROT

Problems and Solutions

Some television commercials aimed at kids are better than the programs they accompany. I remember one commercial in which a child is asked, "What would you do if you met an angry gorilla in the jungle?" She spells the word A-P-E with her "alphabet" cereal and says, "I'd eat it," then pops the cereal into her mouth. Not bad!

All too often, kids believe there's only one way to solve a problem. For some math problems, this may be so. For most problems, however, there are many solutions. Just like the girl who popped the gorilla into her mouth, kids should be constantly reminded that they can find all sorts of creative answers!

DEVELOPING CREATIVE SOLUTIONS

Developing creative solutions to problems takes practice . . . and a good imagination. Creative solutions aren't simply "free responses." They have to fit within some boundaries. The rationale behind a solution must be plausible; a high level of judgment must be used. Once a solution is framed, the creator must ask a question: "Will others accept my solution?" This self-questioning requires an analysis of the situation and a synthesis of the factors surrounding it.

How can we help our students build their problem-solving skills? First, we must believe that every child has the capacity for problem solving. Next, we have to help kids understand problem solving as an application of knowledge, imagination, and judgment. And last, we should provide them with countless opportunities to practice . . . starting with the zany situations posed by this issue's Task Cards!

MATERIALS NEEDED

You'll need at least one computer and printer with plenty of paper; a copy of *Print Shop* (Broderbund), *SuperPrint* (Scholastic), or any other print program that creates letterheads; the four Paint Box Problems Task Cards on pages 51 and 52; enough copies of the teacher-made letterheads accompanying Task Card 1 (see Preparation, below) for each student in your class. Samples to go with the other Task Cards would be helpful for students, but not necessary.

PREPARATION

1. Study your classroom printing software to be sure it creates letterheads. It should include a variety of fonts (letter typefaces) and graphics.

2. Cut out and laminate the Task Cards on pages 51 and 52.

3. Create letterhead to accompany Task Card 1, using the following text and graphics:

Text at top: *IT'S AFTER MIDNIGHT AND YOU'RE . . . locked in a creepy old barn. The only way out seems to be a hole in the roof. There's no ladder, but you've got Mona's paint box. You look inside and find . . . a robot and a stork!*

Graphic at top: *Robot*

Text at bottom: *PAINT BOX, STORK, ROBOT. Can you use these for a creative escape?*

Graphic at bottom: *Stork*

Print out this letterhead and make a copy for each student in your class. (You may also choose to create similar samples to go along with the remaining Task Cards.)

4. Teach your students how to create a letterhead using the printing software. Be sure they know how to select the letterhead option from the main menu; select and position pictures for the top and bottom portions of the letterhead; and select fonts.

5. If you have additional graphics disks, use them. If not—don't worry. Each activity will work with the standard disks supplied with the original printing program.

PRE-TASK CARD ACTIVITIES

• Ask students if they have seen the "alphabet" cereal commercials mentioned in the introduction. Give the children a small handful of cereal letters. Have them make up a "problem" that can be solved by creating and eating one word using some of the letters they've received. For example, "What should you do if your puppy drives you crazy?" (Spell D-O-G.)

• Collect string or yarn, tape or bubble gum, and a stone the size of a quarter along with several other miscellaneous items. Tell a story in which you dropped your car key down a gutter drain. You can see it five feet below but you cannot reach it. Have students suggest solutions to your problem, using the collected items. Discuss which solutions were most reasonable.

• Review Task Card 1 with the class. Distribute copies of the letterhead and read the Task Card aloud. Check understanding before students complete the activity. Encourage students to decorate their letterheads. Then create a bulletin board for displaying the finished products.

POST-TASK CARD ACTIVITIES

• *The End, II*: Have students watch a television sitcom for homework. (Here's one assignment that everyone will do!) In class, list the characters, the situation (or plot), and the ending. Have students brainstorm alternate endings to the show.

• *Kooky Counsel*: Create a bulletin board to look like an advice column (Dear Abby, for instance). Have students write fictitious requests for advice, using a friendly letter format, and post them on the board. Assign students to write a creative response to at least one letter.

Tom Boudrot is an independent educational consultant based at the University of Southern Mississippi.

PAINT BOX PROBLEMS

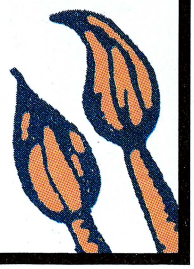
TASK 1

GREAT ESCAPE

CREATIVE COMPUTING STUDIO

Monartista has more than watercolors in her trusty paint box. Everything from buttons to baseballs gets thrown in. Mona (that's her nickname) lets her students borrow her paint-box treasures to solve problems. Now it's your turn to borrow a few items to solve a problem your teacher will hand out to you. (Just remember to return everything you borrowed!)

1. Read your unusual problem. It's on a piece of paper called a *letterhead* that was created with your classroom printing program.
2. Think of a way to use the things in Mona's paint box to solve your problem. You'll have to think hard!
3. Write your solution in the blank space of the paper.
4. Decorate your paper using crayons or coloring pencils.



PAINT BOX PROBLEMS

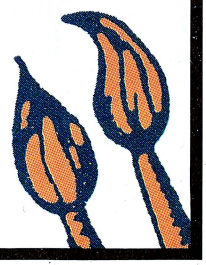
TASK 2

SURPRISE PARTY

CREATIVE COMPUTING STUDIO

Today Mona called from the airport. She's expecting party guests to arrive at her studio soon—but she forgot to plan the party! She's counting on you and her trusty paint box to put a party together. With some luck, you should be able to create a party atmosphere before the guests arrive!

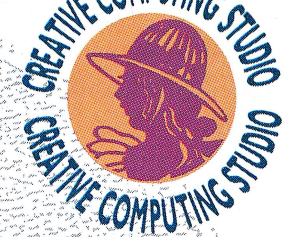
1. Load your printing program into the computer. Select the letterhead option from the menu.
2. Find two pictures that are good for a party. One will go on the top of the paper. One will go on the bottom.
3. Select a fancy font and type the title "Mona's Mystery Party" at the top of the paper.
4. Select another font and type the title "Paint Box." It will go on the bottom of the paper. Then type the names of the two pictures you used.
5. Print your work.
6. Using pen or pencil, write a short story in the blank space on the paper telling all about Mona's party.



PAINT BOX PROBLEMS

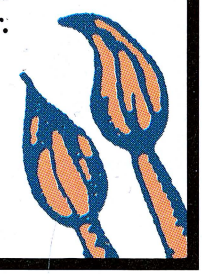
TASK 3

WHAT'S THE STORY?



Monartista always has the newspaper on her workbench. Even if the news is boring, she uses the paper to clean up paint spills. Today Mona tore off a big piece of the front page to wipe purple paint from her sneakers. All that was left was a headline that read: TEDDY BEAR OK, VISITORS FROM MARS TO THE RESCUE. Hmmm . . . what was that all about?

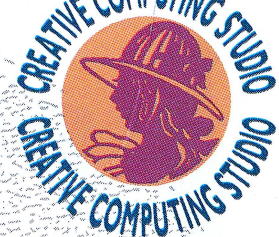
1. Load your printing program into the computer. Select the letterhead option from the menu.
2. Find a teddy bear picture and a space picture. One will go on the top of the paper. One will go on the bottom.
3. Select a fancy font and type the title "Teddy Bear OK, Visitors from Mars to the Rescue" at the top of the paper. Use more than one line if you have to.
4. Select another font and type the title "Paint Box" at the bottom of the paper. Then type "teddy bear" and "Mars visitors" underneath.
5. Print your work.
6. Using pen or pencil, write a short story in the blank space on the paper to tell about the teddy bear's problem and how it was solved by the Martians.



PAINT BOX PROBLEMS

TASK 4

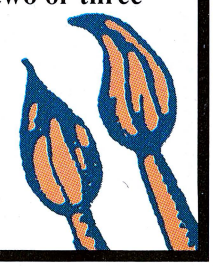
DO IT YOURSELF!

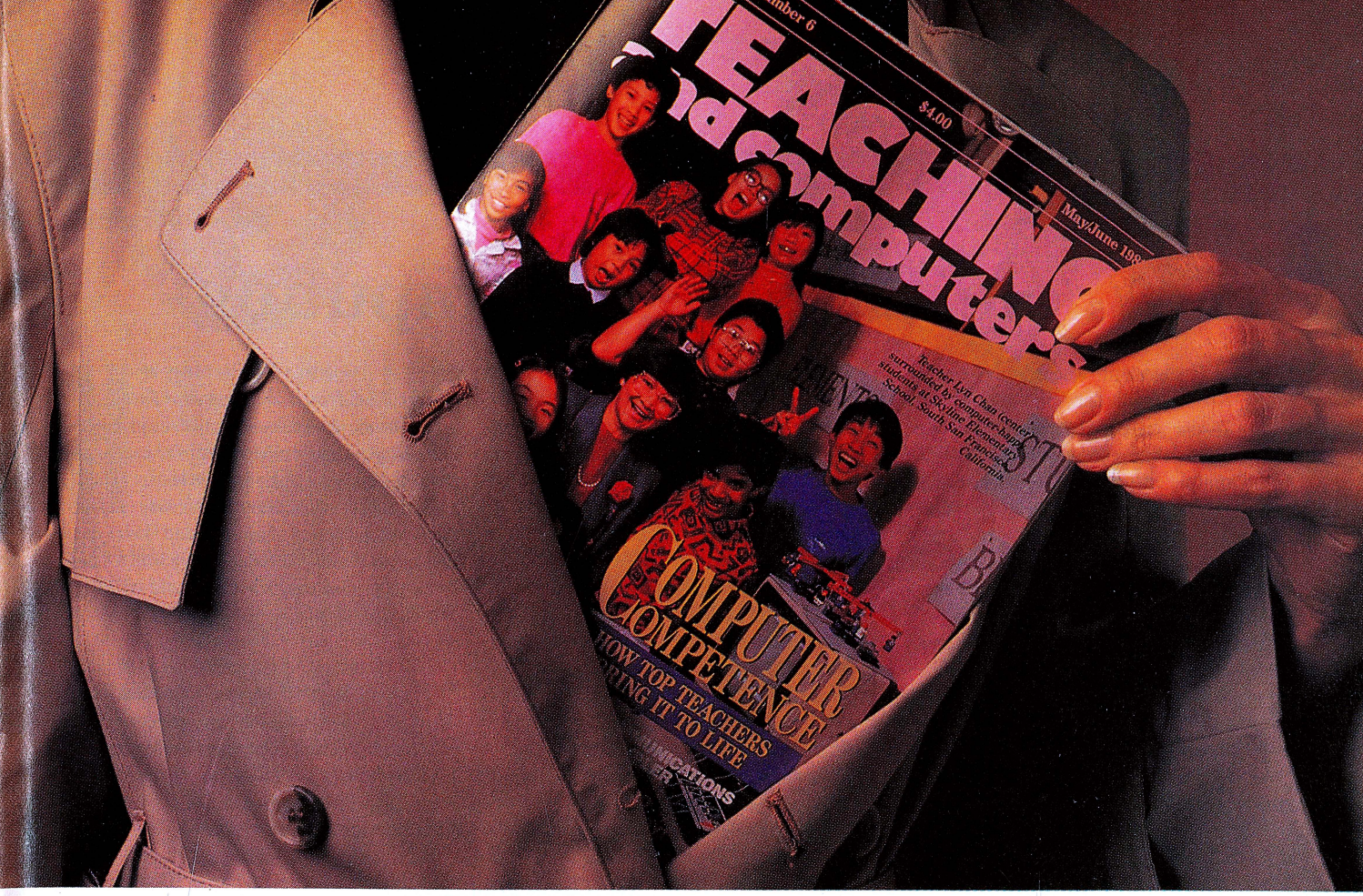


Mona often says (with a grin!): "Give kids two minutes—they'll always find a way to get into trouble!" And now you have a chance to prove it!

Create a Paint Box Problem of your own, then pick pictures of things that will help you solve it. Share your problem with your friends. Were their solutions the same as yours?

1. Think of a weird and wonderful problem. On a piece of paper, write one or two sentences that describe the problem.
2. Load your printing program into the computer. Select the letterhead option from the menu.
3. Find two pictures that would be helpful for solving your problem. One will go on the top of the paper. One will go on the bottom.
4. Select a fancy font and type the title of your problem at the top of the paper. Then type the sentences that describe your problem under the title. It will probably take two or three lines altogether.
5. Select another font and type the title "Paint Box" at the bottom of the paper. Then type the names of the two pictures you used.
6. Print your work.
7. Share your Paint Box Problem with your friends. Can they think of a creative solution to your problem?





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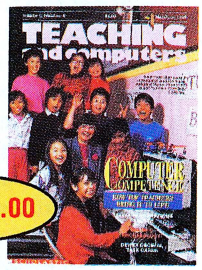

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FIRST STEPS

Computer Activities for Primary Grades

BY TRISHA AINSA, PH.D.

Whole Language Computing

Your classroom computer is one of the best tools for implementing the whole language experiential approach to language arts. With a few simple instructions and classroom management hints, your classroom can be turned into a "children's publishing house and theater" that can generate literature of the most interesting kind: literature based on your students' own experiences. Computerized creative language activities involve children in sensory experiences as they begin to grasp ideas and to develop expressive and receptive language skills; physically, their publishing, art, and performance activities utilize both small- and large-motor skills. As children interact with language, the computer, the teacher, and each other, they learn to master the school environment and improve their self-image.

In the computer-enhanced language arts learning center, a wide variety of learning experiences integrate concepts that go beyond beginning reading and writing to include math, science, and social studies.

MANAGEMENT TIPS

Each classroom will have its own approach to using the computer for creative language activities, but there are some organizational guidelines that will make your "children's publishing house and theater" most workable.

The computer corner should be stocked with wide lined writing paper, blank paper, boxes that hold writing folders, trays for works in progress, pencils, crayons, markers, shelves of published stories and books, alphabet cards or puzzles, a word bank of cards and pictures to match, and software (with necessary accessories) that can be used for writing, making art, learning reading, and more (see Software Resources, below). There should be room for several children to work in "author's chairs" around the computer, and space nearby where children can get together and talk about their work. You'll need access to at least one printer with lots of computer paper, plus a photocopy or mimeograph machine.

For computer-assisted theater activities, students will need a large open area for their performance, plus space to assemble computer-generated scenery (well away from the computer), and chairs for the audience.

SOFTWARE RESOURCES

● Talking Word Processors ●

Talking TextWriter (Scholastic). This talking word processor uses synthesized speech to pronounce letters or words as they are typed on screen; it can also read typed text back later. Apple, MS-DOS.

Dr. Peet's Talk/Writer (Hartley). Using this package and an Echo Speech Synthesizer (see Accessories, below), pre-kindergarten through second grade non-readers can progress from letter recognition to word processing. Each word is read as it is typed, and the menu sings. Apple.

● Graphics/Printing ●

SuperPrint (Scholastic). With this program, students can create 55-inch posters as well as banners, signs, cards, stationery, borders, and so on. Special Early Learning Activity Pack, available separately, has fairy tale characters, a circus, and more. Can also "import" clip art from other graphics programs. Apple and MS-DOS.

The Super Sign Maker (Sunburst). Makes giant banners with a choice of special borders and outline letters to color. Provides on-screen preview to view the sign before printing. Apple, MS-DOS.

Monsters and Make Believe (Pelican/Learning Lab). Thousands of magical characters can be created using over one hundred body parts. Students can then use the program's full-screen text processor to write stories that accompany monster creations. Prints in five sizes. Apple II, IBM PCjr, Macintosh. Can combine with *Talking Monsters* (Pelican/Learning Lab) to add speech using an Echo II or Cricket speech synthesizer.

Dinosaur Days (Pelican/Learning Lab). Use hundreds of prehistoric parts to create realistic or fanciful creatures. A built-in text processor allows the user to combine a story with the picture. Apple II family, MS-DOS, IBM/PCjr.

● Desktop Publishing ●

The Children's Writing and Publishing Center (Learning Co.). Comprehensive, easy-to-use desktop publishing program for kids. Apple, MS-DOS.

Kidwriter (Spinnaker). Create a picture from a variety of objects and then type a story about the illustration. Includes fundamentals of word processing and editing. Apple, MS-DOS.

● Early Reading/Writing ●

Tim & the Cat & the Big Red Hat (Hartley). Pre-primer introduces new words at a comfortable pace for kindergarten and first-grade children. Optional use of an Echo Speech Synthesizer allows students to hear each story and the accompanying optional questions. Apple.

Richard Scarry's Best Electronic Word Book Ever (Mindscape). A truly fun program for practicing all of the early reading skills. Includes many matching activities and other developmentally appropriate tasks for children in kindergarten through third grade. Apple.

Touch 'N Write Palmer Manuscript Penmanship (Sunburst). Children in grade levels K-3 can learn or practice penmanship with a complete curriculum based on the Palmer Method of manuscript handwriting. This program is designed to be used with the Touch Window (see Accessories, below) so that the children can feel the form of the letters and the direction of the strokes. Apple.

● Accessories ●

Touch Window (Window Ware). Ideal for young children, this touch screen/graphics tablet input device works when the child touches the on-screen illustration or instruction to register a response. Self-adhesive Velcro tapes hold the Touch Window in place and allow for easy removal. Apple.

Echo II Speech Synthesizer (Street Electronics). Offers speech to combine with your software; also comes with its own program. Choose between a robotic voice (which kids love!) and a limited vocabulary (700 English words) in a female voice. Apple, MS-DOS.

PRIMARY LESSON PLANS

Here is an array of suggestions for enhancing your whole-language teaching approach by establishing a "children's publishing house and theater" in your classroom computer center.

COMPUTER THEATER

Your students can use your classroom computer to produce an original play—an ideal way to combine reading, writing, speaking, and listening!

Materials Needed: Any or all or the following types of software: "talking" word processor, graphics, desktop publishing (see recommended programs under Software Resources on page 54); large sheets of cardboard for scenery backing; scissors; glue or tape; and crayons or colored markers.

Discussion: Begin this lesson by reading aloud a simple play, ideally one based on a familiar fairy tale; you may wish to have students help read the parts. Then tell your children that they will be writing, producing, and performing their own fairy tale play, with the help of the classroom computer.

Activity: Decide as a class which fairy tale your play will be based on. Help your students to make a list of characters, and brainstorm an outline for the plot; record these on the chalkboard. Next, boot up your word processor, and have students come to the computer singly or in pairs to write or dictate a section of the play with you. If you have a talking word processor, encourage students to create a speaking role in the play for the computer—as a witch, perhaps, or a robot.

Activity: Next, help students to create the scenery for the play using a graphics program that will print large-sized shapes. Decide as a class what scenery will be needed, and have children work in small groups to create each piece. Help them to print out, trim, and mount each graphic backdrop on cardboard before coloring them in.

Activity: Depending on the number of students in your class, you may want to create two or more complete casts for the play, so every student has a chance to participate. Assign students to their roles, and schedule "rehearsals" for helping students read and memorize their lines.

Activity: Help students to create costumes for their parts, incorporating computer-generated graphics wherever possible.

Activity: Work with students to use your graphics and desktop publishing programs to create illustrated fliers and programs for the play. Print out the fliers, and photocopy them for children to take home. Photocopy the programs to distribute at the play's performances.

Activity: Use any program that combines text and graphics to help children create a final illustrated manuscript of the play to print out, photocopy, color in, and save as a "published" document.

Activity: Schedule time for several performances of the play. Assemble the scenery, set up chairs for the audience, and let the theatrics begin!

BIG BOOKS

Big Books are oversize stories that the students will write, illustrate, and publish. The best part is that they come from the students' imagination or real-life experiences.

Materials Needed: Any word processing or graphics program that prints oversize type and graphics; tape or glue; oaktag or poster board; crayons or colored markers.

Discussion: Read a published Big Book to the class, and/or use the computer to create one Big Book page of your own with a picture plus a poem or story.

Activity: Let each child create his or her own Big Book picture page, on any subject of his or her choosing. Print out the picture page and have the student color it in.

Activity: Have each student describe his or her picture with text, either by dictating the words to you or typing them in independently. The text can be added to the picture on computer, or the picture and text printouts can be taped together later.

Activity: Mount each student's page on oaktag or poster board for more durability, and bind them together. Books can be bound with string.

...AND MORE!

Additional whole-language activities involving the computer include:

•*Coloring books:* Have children use a graphics program that prints in outline form to create their own coloring books.

•*"Growing Times" newsletter:* Use a desktop publishing program to help students write and produce a regular classroom newspaper to take home to their parents. ❦

Barbara Friedman

Trisha Ainsa is director of the Computer Literacy in Children/Title VII Program, Region XIX Education Service Center, El Paso, Texas, and an associate professor at the University of Texas at El Paso.

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REVIEWED THIS ISSUE:

EXPLORING MEASUREMENT, TIME, & MONEY—LEVEL I

WORDS & CONCEPTS I

AMIGA LOGO

EXPLORE-A-CLASSIC

Added Attractions

By Therese Mageau

VIDEO VALUES!

Video is becoming a popular promotional and training format for software and hardware companies. More flexible than catalogs, cheaper than sales reps or teacher trainers, video can show a particular product in action in the classroom. The best of these videos use the featured product as a springboard for examining issues in educational computing, such as curriculum integration or students at risk. Below are some of the promotional-training videos available to educators. Most are free and copyable.

Amiga—Creativity in the Classroom, Commodore Business Machines; 215/431-9100.

If you've been hearing about the whiz-bang multimedia capabilities of the new Amiga, but don't have time for a trip to your local Commodore dealer, this video will answer all of your questions, not only about what the Amiga can do, but how teachers and students are using it across the country. Free to educators.

The One Computer Classroom & Video Catalog, Tom Snyder Productions; 800/342-0236.

The first part presents the TSP philosophy of how one computer can change the face of classroom teaching. The second half of the video highlights different TSP programs in different classroom settings: large group, cooperative, and exploratory learning. Free for 30 days; educators may copy.

Teaching Communications: A New Draft and *Why Can't I Come to School on Saturday?*, MECC; 800/228-3504.

In the first of these two new videos, three master teachers illustrate new approaches to teaching communications with technology. The second features two Christa McAuliffe educators in their science classrooms using technology. These are non-promotional videos intended to provide technology role models for teachers. $55 each.

Partners in Education, Mindscape; 312/480-7667.

Success stories about "at-risk" students from several different schools provide the framework for showing how technology can help kids stay interested in school. Free for 30 days; educators may copy or purchase video for $19.95.

Tips for Teaching Keyboarding With Type to Learn, Sunburst Communications; 800/431-1934.

One of a series of teacher training videos put out by Sunburst that shows approaches to integrating computers in the classroom. This one looks at the major questions asked by educators about implementing a keyboarding program. Free for 30 days; educators may copy.

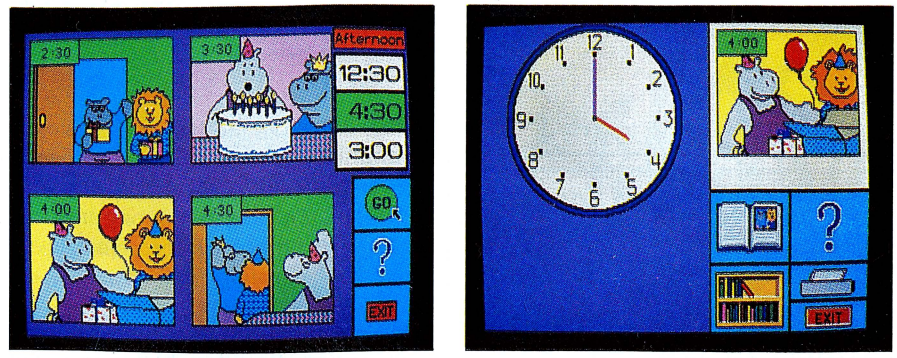
EXPLORING MEASUREMENT, TIME, AND MONEY—LEVEL I

Grade Level: *K-2*
Subject Area: *Math*
Computers: *IBM PS/2 Model 25 or 30*
Memory Requirements: *512K (DOS 3.0 or higher)*
Additional Hardware Requirements: *Color monitor, speech adapter, mouse*

I've seen many programs that help young children learn how to measure, tell time, or count money, but I've never heard or manipulated a program that does all three. *Exploring Measurement, Time, and Money—Level 1,* new from IBM, is a unique set of programs that provide children with a "hands-on" approach to mastering these important early elementary math skills.

Students are in complete control of this program, designed for IBM by the Education Development Center (EDC). Using a mouse, they move, compare, group, measure, and count objects to explore concepts and develop skills. The excellent graphics quickly engage children. Speech plays an integral role as students receive directions orally, click on icons to verify directions, check an answer, receive hints and feedback. Thus, by integrating graphics, manipulatives, and sound, the program touches on the ways different children learn—visually, kinesthetically, auditorily—to create an excellent math tool for young students.

There are four program options—*Measure It, Talking Clock, Money Board,* and *Sticker Store*—each of which provides a number of activities for students to learn and practice various math and problem-solving skills. *Measure It, Talking Clock,* and *Money Board* all begin with "Explore," an open-ended activity that allows students to use the mouse to experiment with the different objects on



In **Exploring Measurement, Time, & Money,** *students use a mouse to manipulate on-screen objects and receive verbal feedback.*

screen (as well as become familiar with the program's environment). Students are free to compare lengths of objects, for example, or set the hands on a clock, or group and count coins. The computer will give voice feedback about whatever the child has done (for instance, how much money he or she has counted). There are no right or wrong answers in these sections.

Measure It offers four additional activities to encourage students to delve deeper into the concepts of unit measurement, "shorter and longer than," and symbolic representations of measurement. In the "Explore" activity, students work with non-standard units, such as paper clips, to explore length; "Measure," the program's second activity, has students measure objects against a standard unit ruler. "Follow the Clues" presents five problems in which students must determine which of the three on-screen objects a detective is looking for from clues such as, "It is four units tall." Students learn how to read a bar graph in "Read the Graph." With the "Graph Maker Tool," students can create bar graphs and tables using data they've collected; graphs can be saved to disk and/or printed. "Graph-Maker Tool" is an especially useful option, as it reinforces and follows through on concepts taught in most elementary math programs.

Talking Clock helps students learn to tell time by engaging them in increasingly complex explorations of the concepts of hours, half hours, quarter hours, and five minutes. Students play "Match the Time" by finding the analog and digital clocks that show the same time. In "Set the Time," students must set an analog clock to a specified time. "Set the Time: Before and After" goes the next step by asking students to set an analog clock to a time that is before or after a specified time. Finally, in "Make a Story," children must connect times to four events that take place in stories about a character named Hippo. This activity not only tests students' sense of time-appropriateness (would Hippo eat breakfast at three in the morning?), but their sequencing skills as well (Hippo can't get up at nine and eat breakfast at eight). The program will read the completed story to the child. Students may save their story to disk and/or print it.

Money Board and *Sticker Store*, while two separate programs, work together to help students understand different aspects of money. In *Money Board*, students try to figure out "How Much Money" by counting the value of a group of coins and entering the number on a cash register. "Pay the Exact Amount" has children buy an object, such as a toy train, by counting out the exact amount of money indicated on the price tag.

Sticker Store is a simulation in which students play both customer and storekeeper. In "Buy Stickers," students are the customers and must decide how to pay for a sticker when they don't have the exact change. The computer models making change. Students then switch roles in "Make Change," and as storekeepers must give the correct change to the computer/customer. "Buy and Sell" is designed for two students to work as a teams, taking turns as storekeeper and customer. Together they buy and sell stickers.

The program will not run without a speech card and mouse. Speech permits non-readers to fully use the program. Pedagogically, the mouse is also important, as much of the learning occurs while children use the mouse to manipulate on-screen objects.

Change options allow teachers to go in and preset a difficulty level and activity. The teacher's guide contains a complete description of all program components and lesson plans that include lists of prerequisite skills, introductory off-computer activities, class demonstration ideas, worksheets, hints for stimulating student involvement, and follow-up suggestions.

"Make a Story," from the *Talking Clock* program, has a random generator for the times to be chosen for the various stories. I found some of the choices to be in conflict with students' real experiences. For example, in one Level-A story I played, Hippo had a bedtime of 9, which is a little late for primary youngsters.

This is an outstanding set of programs, and it makes one wonder why IBM hasn't developed more educational software. It also makes one wonder why the programs are only available on 3.5-inch disks. Considering that so few elementary schools have PS/2 computers, it seems limiting of IBM not to have the program run on 5.25-inch disks for the PC.

These four programs can enhance any area in primary math, as well as other areas of the curriculum where the different concepts are addressed. If you work with an IBM PS/2, and have access to or can afford to buy a speech card, you should consider investing in this excellent package. *Exploring Measurement, Time, and Money—Level 1* could not help but give students an edge on learning these important lifelong concepts.

IBM, PC Software Department, 1 Culver Rd., Dayton, OH 08810; $195; no phone orders; no backups; no preview, but a local IBM representative will demonstrate the program.

Ann Dana, *microcomputer consultant, District 181, Hinsdale, Ill.*

(Circle 104 on Product Info. Card.)

(Continued)

WORDS & CONCEPTS I

Grade Level: *Special Education, Grade 1 to Adult*
Subject Area: *Language Arts*
Computers: *Apple II family*
Memory Requirements: *64K*
Additional Hardware Requirements: *Speech synthesizer*
Optional Hardware: *Touch Window, joystick, printer*

Words and Concepts is an engaging three-program "multisensory" series of integrated language lessons developed for special education and rehabilitation learners by Laureate Learning Systems. Each program trains and tests students on key language concepts by providing a host of activities related to 40 core vocabulary words.

Words and Concepts I—the program I looked at—is an excellent tutoring and assessment tool for the early special education learner and teacher. In the "training" section of the program, six units cover word recognition, categorization, word identification by function, word association, and the concepts of "same" and "different." Most units have three levels of increasing difficulty and students can work with one level at a time or a combination of all three.

At the first level, students will hear a sentence such as, "This is a lamp," while being shown a picture of a lamp. If the text option is on, it will show the word as well. Next, the program will display three pictures and the instruction, "Find the lamp." A visual cue marks the correct box. Level two drops the visual cue. At the highest level of challenge, students get no advance information or cue: they are presented with the pictures and asked for a response.

At all levels, if students make an error the program gently clues them by causing the correct picture to move and change color. If there is no response in the allotted time (and teachers may set the response time from 1 to 10 seconds, or even indefinitely for severely motor-impaired children), the answer is simply stated. If students continually give wrong answers, the program drops back or repeats a level. There is no negative feedback.

When students are correct, they receive both aural and textual feedback, as well as a little dance by a highly animated creature named Boz. All of these excellent features are very important for stimulating special education children and relieving them of their fear of failure

The speech component of the program is particularly well done. My students, many of whom do not read, found the pleasant and understandable voice extremely helpful. Some of the graphics, however, were not as clear as they could have been. In the "Same" and "Different" units, for instance, it was very difficult to tell the difference between the woman's blouse and the man's shirt.

Teachers can choose a keyboard, joystick, or Touch Window as the input device, or choose the Scanning/Single Switch option which permits severely physically disabled students to respond by simply pressing the space bar or any single switch plugged into the game port. Teachers can determine how many correct answers a student must achieve before moving on to the next level. Animation, text, and voice can be turned on or off.

At the end of each lesson, a summary displays the total correct reponses for each level played. A second screen lists each word, how often it was presented, and how many times the student correctly identified it. Teachers may print out the screen with the child's name and a comment of up to seven lines long. This is the only "management" option in the program, and it's a distinct disadvantage for the teacher who doesn't have access to a printer. There should be an option to save student records to disk.

In the "test" portion of the program, students are quizzed on the same vocabulary words they've covered in the training mode. This section—which provides no instruction, cueing or feedback—is designed to be used as a pre-test and/or post-test. Summary screens similar to the training section display total number of correct responses, a list of words presented, and student responses to each word.

For what age is *Words and Concepts* appropriate? The average child, starting at age six-and-a-half or seven, could work fairly independently at the program after some adult help at the beginning. However, for brain-injured children and adults, supervision would be necessary to show them what keys must be used. The publisher recommends using a Touch Window precisely for this purpose, but for those teachers who don't have access to one, it might be helpful if Laureate supplied colored stickers to be placed on the keys that would match the colors of the boxes on screen (for instance, 1-red, 2-blue, 3-green).

In the well-written *Words and Concepts* guide, the authors discuss some of the pedagogical research on how children acquire vital language skills. It is clear from the design of this versatile, enriching program that they knew how to apply that research to create an excellent learning tool for special needs children.

Laureate Learning Systems, 110 E. Spring St., Winooski, VT 05404; 802/655-4755; $185 for each Words and Concepts; no backup included; no preview.

Juliana Roberta Berry, *special education teacher, Southside ISD, San Antonio, Texas*

(Circle 105 on Product Info. Card.)

AMIGA LOGO

Grade Level: *All*
Subject Area: *Cross-curriculum, computer literacy*
Computers: *Commodore Amiga 500, 1000, and 2000*
Memory Requirements: *minimum 512K*

Hurrah for Commodore! Hot off the press, *Amiga Logo* is a giant leap in the company's revitalized efforts to compete with Apple and IBM in the fiercely competitive education market. It was only a matter of time before a version of education's most popular programming language would be made available to Amiga users.

Teachers are weary of having to learn new Logo dialects. Fortunately, *Amiga Logo* is designed to follow very closely the original Logo versions produced by Terrapin and LCSI. This foresight in development makes it easy to use almost any generic Logo book, tutorial, or procedure on the Amiga with very few changes. Indeed, the *Amiga Logo* manual suggests you do just that.

What makes this new version interesting is the addition of many operational features unique to the Amiga computer. It is definitely impressive to see incorporated into the Logo environment such features as Amiga's multitasking ability, use of up to thirty-two colors (over 4000 hues), four selectable screen resolutions, speech capabilities, free-hand drawing with the mouse, and colored text on the graphics screen.

Users have a choice of keyboard commands or pull-down menus to control the screen design (split, text, or full graphics) and also to choose a screen resolution of 320 x 200, 320 x 400, 640 x 200, or 640 x 400 pixels. Add the capabilities for choosing the number of colors and range of RGB hues by mouse clicks, and most anyone would agree that Carl Sassenrath, developer of *Amiga Logo*, has put a considerable amount of Logo power in the hands of experienced programmers.

Commands in *Amiga Logo* are executed with incredible speed, making it an ideal medium for flashy math-related graphics. This speed of execution, combined with an extensive set of primitives dealing with property values and flow of control, make data base management much easier than in some previous versions of Logo.

(Continued)

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The new "Mouse Draw" feature enables the user to sketch images directly on the graphics screen with the Amiga mouse. By positioning the mouse within the graphic window and holding down the left mouse button, a line is drawn as the mouse is moved about. Making further use of the industry's favorite rodent, the mouse option outputs the X,Y position of the mouse pointer on the screen. To find the turtle's position, simply move the mouse to point to the turtle, press the mouse button, and reposition the turtle on the screen. Its X,Y coordinate can be found using POS—an easy way for mouse afficionados to find turtle positions for use in Logo procedures.

Wait, there's more. Other admirable features of *Amiga Logo* include the ability to dump text and/or graphics to the printer with simple one-word commands; the GRAPHICSTYPE primitive (similar to LogoWriter's LABEL), which prints gorgeous colored text on the graphics screen; RGB, a command to output the list of red, green, blue color components used in a specific colornumber; and SETRGB, which assigns different colors to the colornumber.

For multimedia "help," speech is incorporated into the help screens with instructions recited aloud as the user reads. Twenty-three math function commands, along with number representation in exponential form (similar to scientific notation) make number crunching a breeze for mathematically-oriented programmers.

So what do all of these fascinating features in *Amiga Logo* mean to dedicated Logo users? For one thing, they mean that Logo finally exists for an impressive machine, the Amiga. To programmers interested in proving that Logo is more than a "child's programming language," it provides the advanced commands found in LCSI's *Apple Logo II* and Terrapin's *Logo PLUS* along with the added innovations of speed, mouse control, multitasking, and outstanding color graphics control. It's fun, exciting, and challenging.

The somewhat less than good news is that, in spite of the efforts to utilize the Amiga's fine capabilities, this Logo does not have some of the updated features other versions have incorporated over the years. A perfect example is Amiga's use of 24 Control key characters for controlling text. LCSI correctly perceived that this was too much for children to contend with and found easier ways to give the student control.

Ironically, some of the very features which make Amiga Logo faster and more powerful provoke some serious considerations in terms of pedagogy. *Amiga Logo* may not be the best choice for the elementary classroom with teachers who are just learning the language themselves. As an example, the turtle is too small. It moves too fast. Syntonic learning cannot occur unless the child can relate the turtle's movements to the image in his or her mind. What wonderful discoveries can be made if the turtle moves faster than the eye can see or the young mind can comprehend?

Likewise, the critical thinking skills developed through commanding the turtle to draw shapes by moving forward or back a number of units, then turning right or left a number of degrees, are totally lost when the child discovers that with much less effort he or she can simply draw with the mouse.

Considering the astounding success classroom teachers have reported with the word-processing and shape editing-features found in LCSI's *LogoWriter*, it's too bad this new version of Logo for the Amiga didn't include those capabilities. Similarly, multiple turtles and shape-editing are valuable features which are lauded by classroom teachers as keeping the interest of the youngest beginner as well as the older student "experts." Why were these features omitted from *Amiga Logo*?

Yes, there are some shortcomings. But this is, after all, the first Amiga version of Logo. As with other Logo dialects, this one will undoubtedly be improved and updated as time goes on. Keep watching . . . it's nice to have Amiga in the ball game!

Commodore Business Machines, Inc., 1200 Wilson Dr., West Chester, PA 19380; 215/431-9100; $99.95, site licenses available; permission to make one backup or copy to hard disk.

Dee Miller, *computer specialist, St. James Day School; instructor, graduate computer courses, East Texas State University, Texarkana, Texas.*

(Circle 106 on Product Info. Card.)

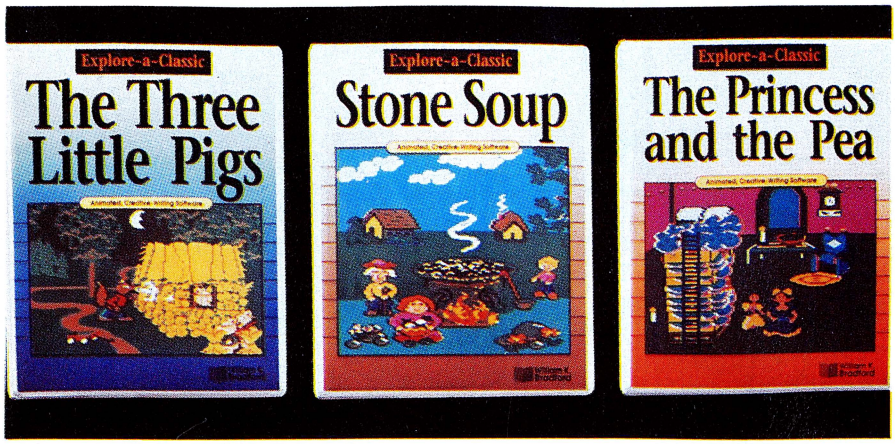
EXPLORE-A-CLASSIC: THE PRINCESS AND THE PEA, STONE SOUP, THE THREE LITTLE PIGS

Grade Level: *PreK-3*
Subject Area: *Language Arts*
Computers: *Apple IIe, IIc, IIGS; available in 3.5" and 5.25" format*
Memory Requirements: *128K*
Additional Hardware: *Color monitor and mouse recommended*

A poor beggar, wandering hungry through the countryside, comes upon a woman in her house. He asks her if she could please share a crust of bread with him. She chases the man away with her broom shouting, "I have no food to share, nothing at all! Now, go."

So begins the classic children's story, *Stone Soup*. But what would happen if, instead of merely reading the story, you could step inside it and take the door off the woman's house? Or open the shutters? What might you find inside? What if you took the people out of the house? Are they hiding anything?

Learningways, in conjunction with William K. Bradford, has developed three delightful *Explore-a-Classic* programs to enable students to take what has traditionally been a one-dimensional medium—the book—and bring to life all aspects of the story. The programs use advanced



Three timeless tales come alive in interactive formats designed by Learningways and William K. Bradlord.

animation techniques to allow children to manipulate their microworld to investigate and even recreate the stories.

The programs all employ the familiar Learningways interactive interface, known to teachers through the *Explore-a-Story* and *Explore-a-Science* series. Using a mouse (or keyboard, joystick, KoalaPad, or Touch Window—but the mouse seems to work best), students "get inside" a story. They can move objects around on the screen, explore surprises hidden in the scene (is there a mincemeat pie cooling behind the shutters?), and even write their own text to accompany the pictures.

The programs employ two double-sided disks: a Program Disk/Story Teller, where students can read and interact with one version of the story, and a Story Maker/Activities disk, where students have the chance to retell the story, write a new story, or explore different aspects of the story through extension activites.

Each program's Story Teller option begins with "Once upon a time..." and then proceeds to tell the story using a series of animated pictures that can be manipulated in any number of ways. As students move from screen to screen, scenes from the story appear. The text can be accessed by clicking on an icon and can be hidden in the same way. Students can freely explore each story screen, picking up characters and objects, moving them around, dropping them in new places, moving objects to reveal new objects.

The Story Maker option repeats the major scenes of the story without any text. Children can add characters and objects, write their own text, even change the background. Children's stories can be saved and/or printed in black and white or color.

The Activities option takes the content and skills of the story a step further by providing activities that serve to enrich students' thinking about the characters and their environments. Each of the three programs offers two of the same activities. The first, "Story Ideas," provides children with single screen "story starters," scenes using some of the same characters as they found in the story, but adding a twist. For instance, in *Stone Soup* the children are confronted with a dinosaur emerging out of their soup pot! In the second activity, the major characters in each story are depicted on screen; children can print them out and make finger puppets out of them.

From then on, each program provides different, highly creative activities appropriate to its particular story. In *Stone Soup*, students go on a treasure hunt, count, sort, and classify soup ingredients, and create an invitation to a Stone Soup party.

In *The Three Little Pigs*, students can look for hidden tools, build a house, or work with manipulative math problems based on the storyline. (I did feel that these problems were not consistent with the skill level of the rest of the program. One problem asks children to move 12 bricks in groups of three and the other involves understanding how much is one-half of 12—both too difficult for young children.)

In *The Princess and the Pea*, students construct their own crowns, build a castle, and build any object they would like with three colorful piles of peas!

As I have found always to be the case with Learningways programs, the documentation is well-prepared and designed. The Story Guide supplies all the text and offers suggestions for ways to stimulate youngsters to manipulate the storyline. In addition, the guide provides off-computer activity ideas to extend the learning into other areas of the curriculum. The User's Manual is generic to all three programs, and succinctly describes all aspects of running the program.

One criticism: it requires three steps to get from the Story Teller back to the main menu, which is a lot to ask of a young child. On the Activities disk there is a Main Menu icon that should be accessible everywhere. And finally, although the programs are very easy to use with the mouse, I do wish they worked as well using the keyboard or other peripherals, as there are many schools that lack the latest technology.

But these are minor complaints. *Explore-a-Classic Software Series* represents one of the best uses of computers in our schools. By designing programs that combine high level creativity with basic skill development, Learningways and William K. Bradford have created their own classic.

William K. Bradford Publishing Company, 594 Marrett Rd., Lexington, MA 02173; 800/421-2009; each title $75; Program/Story Teller disk backup included, copiable Story Maker/Activities disk; 30-day preview.

***Evelyn Woldman**, software specialist, Chapter 1 Computer Center, Framingham, Mass.*

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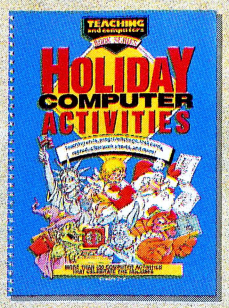

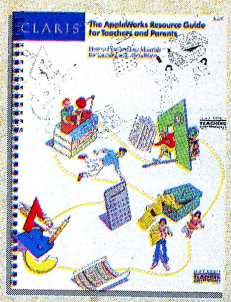

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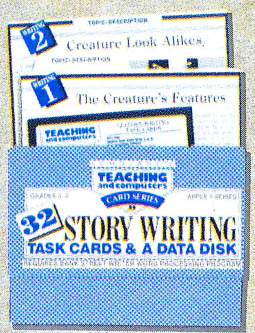

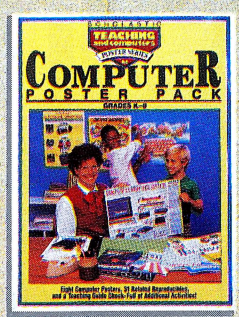

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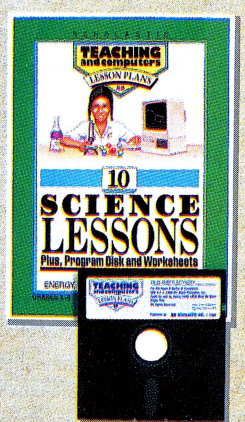

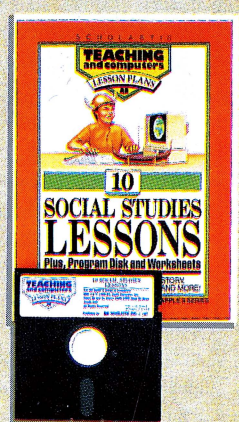

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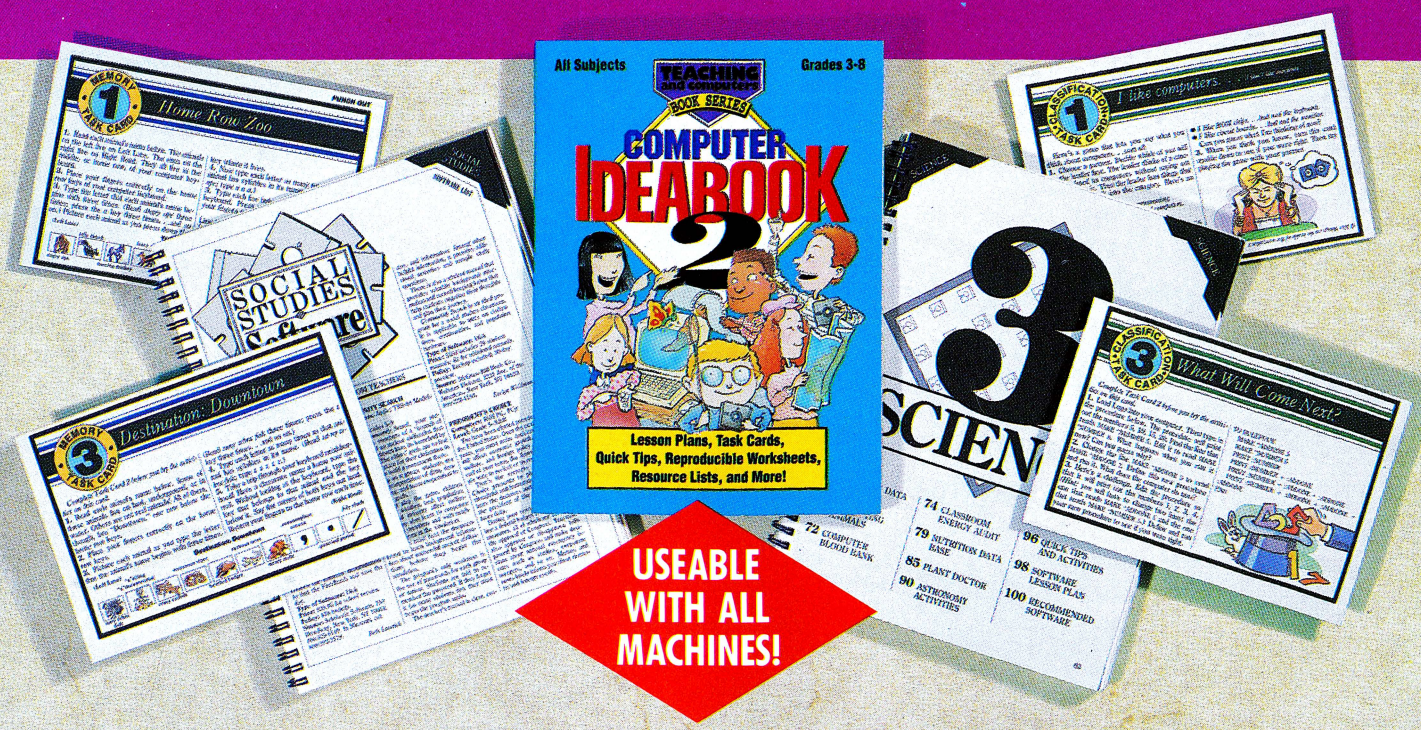

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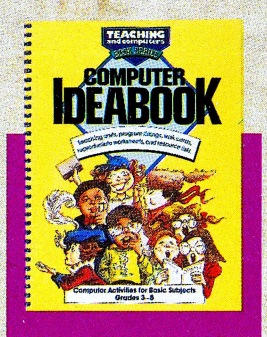

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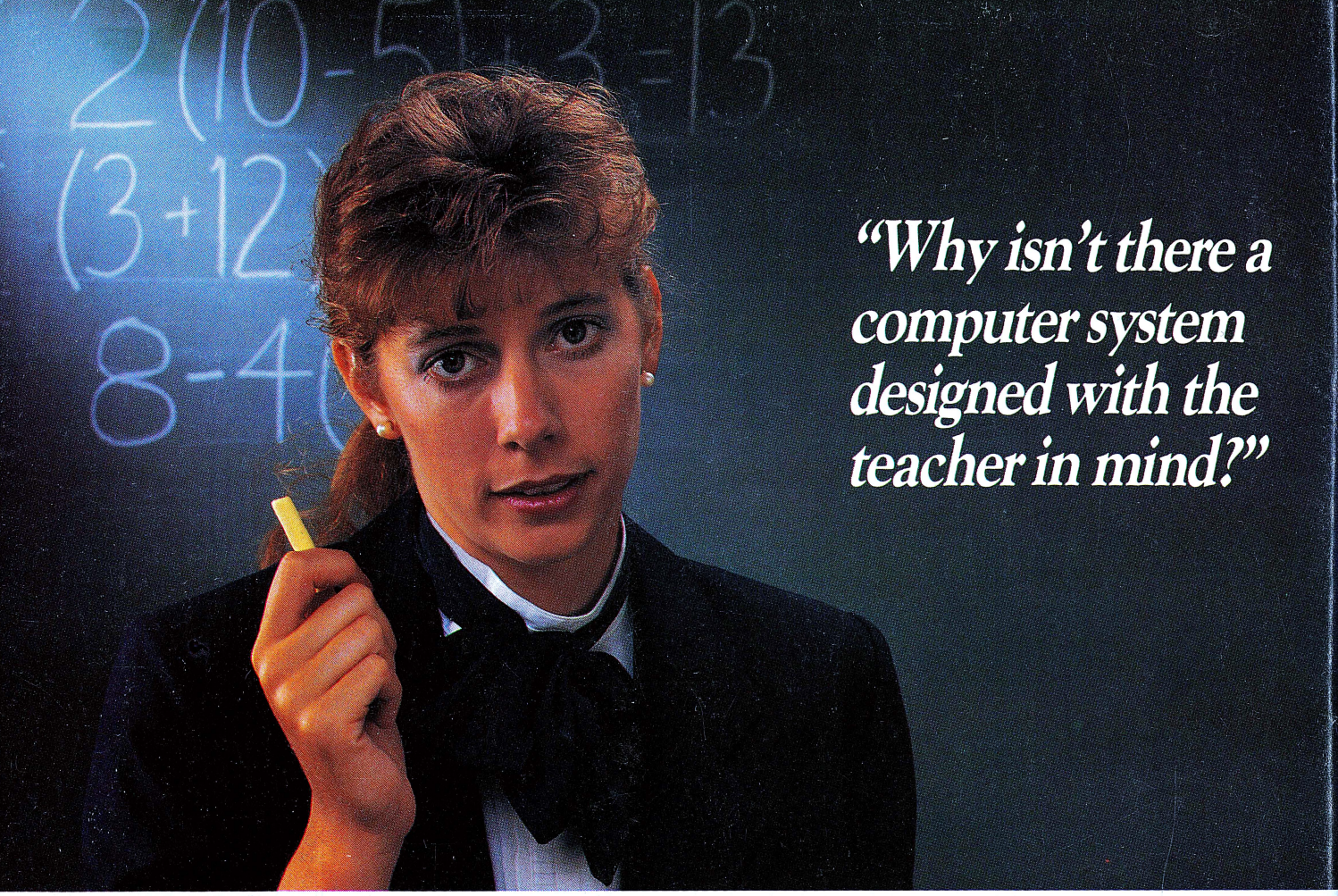

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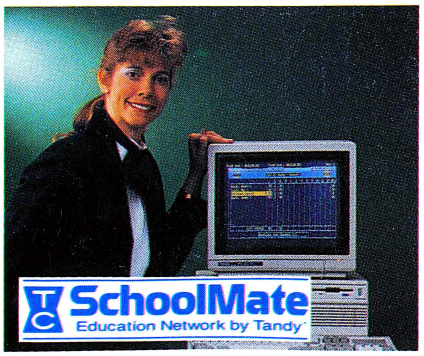

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